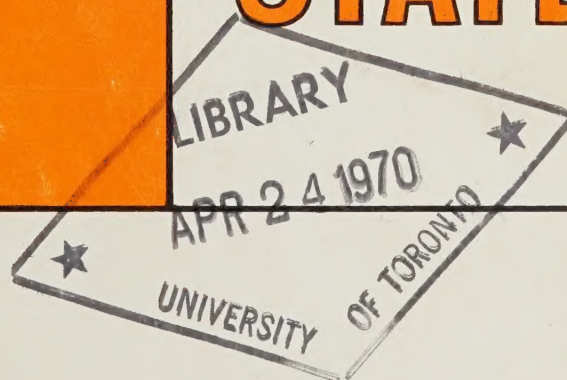


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WAGES IN CANADA




AND THE UNITED STATES



AN ANALYTICAL COMPARISON

ALLAN A. PORTER AND OTHERS

ECONOMICS AND RESEARCH BRANCH, CANADA DEPARTMENT OF LABOUR



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Prepared in the Wages Research Division
of the Economics and Research Branch

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CANADA DEPARTMENT OF LABOUR

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A Note on Revisions
Affecting Section One

Because of certain unavoidable delays in publication of this book, it makes its appearance some time after publication by the Dominion Bureau of Statistics of revised national accounts data. That these revised figures were expected at the time this book was prepared is mentioned in the text, especially at the foot of page 9 and the top of page 10. It was decided that a comparison of national income and its distribution in Canada and the United States should be included in the study, notwithstanding that revisions of the Canadian data were expected and that completion of this study could not be delayed pending release by DBS of the new data.

In fact, the prediction made at the top of page 10 is borne out, and significant upward revisions in the Canadian values have shown the gap between the per capita income of the two countries to be less than the unrevised data indicated, and the gap to be declining more rapidly.

The revised data show, for example, that the U.S./Canada ratio of gross national product per capita, in constant dollars (Table I-2), has narrowed, not widened. It has moved from 134.9 in 1947 to 130.6 in 1967, compared with an increase from 137.7 to 147.3 shown in the table (page 22). This is because (1) an upward revision of the Canadian figures in current dollars, and (2) expressing the data in terms of 1961 rather than 1949 constant dollars, based on a revised GNP deflator, showing a reduced rate of price increase, compared with the old deflator.

The revised data show also that the share of national income going to labour has been generally higher in Canada since 1956 than what is shown in Tables I-7 and I-8. However, the Canadian labour share remains lower than the U.S. share.

Foreword

The important work done by the Canada Department of Labour, through its Economics and Research Branch, in conducting regular surveys of wage rates, working conditions, collective agreements, collective bargaining, and labour organizations, is well known. An activity of growing importance in recent years has been special research into issues and problems in the labour field. Although such research cannot always lead to the production of published material, it does, whenever possible, and especially when the subject is of considerable importance and widespread interest. This monograph is published for such a reason.

The importance of the economy of the United States to that of Canada is so clear as to need no explanation. Certainly this applies to wages as much as to other aspects of the two economies. In addition, there is the special importance of United States wages as an influence on industrial relations in Canada. This study is intended to illustrate, not explain. It depicts wages in Canada in relation to wages in the United States and compares wage trends in the two countries.

The study was conceived in this Branch, and shortly after it had begun, the Task Force on Labour Relations was established by the Prime Minister. Because of the Task Force's interest in the subject of the study, it provided special assistance to the Branch to expedite early completion of the work. A preliminary version was submitted to the Task Force late last summer and the present version is a substantial revision of that report.

The principal author, Allan A. Porter, is Chief of the Wages Research Division of the Branch. Réal Parent, an economist in the Division, prepared some of the technical appendixes and his authorship is indicated; he also assisted in other parts of the study. Responsibility for the computations and tabulations was that of George Jaycox who supervised this work. A special word of thanks goes to David Fairbarns, until recently an economist in the Branch and now with the Department of Consumer and Corporate Affairs, for his advice, especially on national accounts analysis in Section I.

George S. Saunders,
Director,
Economics and Research Branch.

April 1969.

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Introduction and Summary

The pervasive influence of the United States on almost any kind of social activity in Canada is a fact of history. Nowhere is this more apparent than in economic activity. While the labour dimension of Canada-United States economic interaction has not been ignored in studies of the two countries, comparisons of labour income and, more specifically, of wages and salaries, have been largely confined to highly aggregated data.

Twelve years ago a study entitled Canada-United States Economic Relations, by Irving Brecher and S.S. Reisman, was produced for the Royal Commission on Canada's Economic Prospects. This study contained some comparisons, on an annual basis from 1926 to 1955 inclusive, of labour force, gross national product and disposable personal income per capita and per worker, average hourly and weekly earnings for all manufacturing (beginning in 1939), and other data. As useful as these data were, they could not be used for any comparisons in depth, by industry or region. Of course, the information now also suffers by being out of date.

A more recent work was published in 1967 entitled Free Trade Between the United States and Canada, The Potential Economic Effects, by Ronald J. Wonnacott and Paul Wonnacott (Harvard University Press), that contains, in a chapter on wage costs, a lot of data on average hourly earnings for 16 manufacturing industry groups for 18 areas in Canada and the United States. But the data are for one year only, namely 1958. The kind of presentation is extremely useful for anyone wanting a comparison of wages in fine industry and regional detail but nothing quite so detailed is undertaken in this study. What has been produced here is a compromise covering a number of years, as in the Brecher-Reisman study, but with a breakdown closer to the detailed data presented by the Wonnacotts.

The approach used here might be called descriptive-analytical in that the data are sufficiently detailed to permit comparisons in depth. However, it must be emphasized that the approach is descriptive; it is not intended to explain differences between Canada and the United States, merely to describe them, albeit in some detail. For many readers a description may be sufficient. For others who look for explanation as well, suffice it to say that adequate description must precede explanation. Research has been under way in the Canada Department of Labour leading, it is hoped, to some explanation of the differences in Canadian and United States wage behaviour; however, it is still too early to say whether any publications will issue from this work.

Little need be said about the treatment of the data or the methodology because they are pretty well self-explanatory. The approach is to move from the general to the particular, from large aggregations to more discrete units. Because this is a study of wages, which are the chief, but not the only kinds of labour income, before wages are compared and analyzed in some detail, labour income as a whole is examined. And because labour income is only one form of income — although it accounts for most income — the study begins with a look at national income and how it is shared by labour, investors and owners of "small business".

Thus the study moves from national income to labour income, to wages and salaries and then to wages alone. And most of the study concentrates on wages as such. Most of the Canada-United States comparisons are by industry in which the unit of comparison is averages of wages paid to all workers in the industry in each country. There are, as well, comparisons by region and city which make use of average wages for all workers in all manufacturing in each location, but also use a number of wage rates for specified occupations.

Average manufacturing wages in a particular place depend, for their relative magnitude, on the kinds of manufacturing industries found there. A predominance of high-wage industries in one place and low-wage industries in another obviously affects the comparison. Another influence on the comparison is the relative importance of high-wage and low-wage occupations. To hold this factor constant some comparisons are of wage rates for particular jobs. An even better comparison, in terms of holding factors constant, would have been of rates for the same occupation in the same industry, but this was not done. Such comparisons and comparisons by size of establishment, and so on, even if possible, would have unduly extended the length and complexity of this study and delayed the date of its completion. In fact, analysis in such detail would not be possible in most cases because the necessary information is not available or could only be made available after much modification of the raw data at hand.

From time to time articles or monographs are published, incorporating the results of analyses in depth of wages in Canada or the United States. This department hopes to produce and encourage others to produce such studies for Canada. As the number of these studies grows, so will our understanding of Canadian wage behaviour and how it compares with wage behaviour in the United States and other countries.

A summary of the findings

Between 1947 and 1967 gross national product, the value of all goods and services produced in a country, increased more than one third faster in Canada than in the United States, in current dollar terms, but only 10 per cent faster in constant dollar terms, that is, when allowance is made for increasing prices. Prices have risen more in Canada than in the United States in the past 20 years, so any comparisons of income will show greater changes in Canada, compared with the United States when no allowance is made for the more rapid increase of Canadian prices, that is, when the comparison is in current rather than constant dollars. However, as is pointed out in Section I, revised data on Canadian gross national product, which may have been released by the time this study is published, are expected to show a somewhat greater increase in real terms than is shown by the data now at hand. Therefore, comparison with the United States will favour Canada.

In constant dollar terms (1949 prices) United States GNP per capita exceeded the Canadian by a wider margin in 1967, by 47 per cent, than 20 years earlier when the margin was 38 per cent. Revised data, as explained above, may reduce the United States margin, but even so, it is safe to say that in real terms the gap between Canada and the United States seems to have widened somewhat. This is because of the more rapid growth of the Canadian population and increase in Canadian prices. But it must not obscure the fact that aggregate GNP in real terms has increased more rapidly in Canada than in the United States.

For some reason, national income, in current dollars, increased much more rapidly in the immediate postwar years in Canada than in the United States. By 1949 this marked difference had ended although between 1949 and 1967 the Canadian rate of increase did exceed the rate in the United States. In 1947 United States per capita national income was two thirds greater than that in Canada, but by 1949 it was only 50 per cent greater. By 1967 the difference had narrowed only a little more, by 7 percentage points. A similar trend is shown in this study for national income per worker. (Please note again: all this is in current, not constant dollars.)

This study contains a brief comparison of distribution of national income by factor shares. Through the postwar years, labour's share has tended to average two thirds in both countries. However, the share going to labour has been a little less in Canada, while the share of national income going to investment and unincorporated business has been somewhat larger than in the United States. There is some indication that the Canadian labour share is moving closer to what it is in the United States, but the signs are not sufficiently conclusive to indicate a trend. But there has been a long-term trend -- over the past 40 years or more -- toward an increased share of national income going to labour.

The study next considers annual labour income, namely, average wages and salaries combined, exclusive of the value of supplementary labour income, or fringe benefits. It is regretted that it was not possible to include fringe benefits, along with state-provided benefits, in the comparisons because they may in some cases offset some of the United States margin over Canada and in other cases enhance the margin. Whether, on balance, the differences would diminish or widen the Canada-United States gap is not known. To estimate the value (and cost, which is not the same thing) of fringe benefits is a complex operation, but it is hoped that some such comparison can be made in the future.

It is to be expected that average annual labour income, which represents the average of the earnings of all people arising out of their employment, will follow much the same trend as that of national income per worker, especially when it has been observed that the labour share of national income has remained fairly constant. Thus we find that average labour income in the United States exceeded that in Canada by 27 per cent in 1949 and 26 per cent in 1967, while United States national income per worker exceeded the Canadian amount by 38 per cent in 1949 and 39 per cent in 1967. By both measures there was virtually no change although the margin was greater in national income than in labour income terms.

Most of the analysis is in terms of domestic dollars, that is, United States dollar values are compared with Canadian dollar values without allowing for the rate of exchange between the two currencies. However, some allowances is made in Section II for the exchange rate by making some comparisons in Canadian dollar terms on both sides; that is, the United States values are converted to Canadian dollars. Allowances for the different rates of increase of prices in the two countries are made by expressing some of the comparisons in constant dollar terms in Section I (as already noted) and in Section II. The effect of the more rapid rise of Canadian consumer prices has already been pointed out.

Although little change has occurred in the gap between Canadian and United States labour income, averaged for all workers, the differential has narrowed in manufacturing. This is even more noticeable for manufacturing when the basis of comparison is average hourly wages rather than annual labour income. The hourly wage gap (i.e., the United States margin over Canada) declined 55 per cent for all manufacturing and 68 per cent for metal mining between 1949 and 1967 and 34 per cent for construction between 1949 and 1965 (in this last instance data up to 1967 not being available).

Hourly wages for 15 groups of manufacturing industries (accounting for about 97 per cent of all manufacturing employment) are compared in the third section of this study for the years 1949 and 1965. (Why a later year than 1965 was not used is explained in the text, and especially in the appendix to Section II.)

Comparison of the behaviour of Canadian and United States hourly wages in manufacturing industries produces two especially notable features. The first is that in no instance between 1949 and 1965 was there an increase in the United States margin over the comparable Canadian wage. The second feature is the wide variation in behaviour. The ratio of the United States to the Canadian wage decreased by as little as 4 per cent in one industry and as much as 24 per cent in another. The average reduction was 15 per cent. What this means is that between these years there was a great deal of change in the comparative wage position of the Canadian industries, vis-à-vis the United States. For example, the second largest wage gap in 1949 was in printing and publishing, at 55 per cent, but by 1965, at 19 per cent, it stood eleventh out of the 15. A reverse situation is found for rubber products which, with a 1949 wage gap of 39 per cent, was fourth smallest (that is, it ranked eleventh out of 15) and, with a 1965 gap of 34 per cent, was the largest. Of course, in printing and publishing there was a large reduction in the gap while there was little change in the rubber industry in the face of a substantial reduction for most of the other industries examined.

How similar are the wage structures of the manufacturing industries in the two countries? In other words, are the wages paid in a particular industry likely to be about the same, relative to wages in the other industries, in both countries? By and large, this is so. The industries with above average wages were much the same, and similarly with those below average or about average. However, there were differences in the extent to which the wages in the same industry were above or below average; for example, wages in transportation equipment were about the same relatively in 1949, 18 per cent above average in Canada and 19 per cent above average in the United States, but by 1965 the Canadian wages were 19 per cent above average while the United States wages rose to 25 per cent above average. Such differences in wage structure are examined in detail in this study.

The analysis of Canada-United States manufacturing wage differentials and relative wage structures is completed with a consideration of shifts in employment as well as wages. It is observed that employment was so distributed in both countries in both years that the influence of the higher and lower wage industries did not, when weighted by employment, shift the average significantly from what it would be if employment were evenly distributed among the 15 industries. However, while the range of Canadian wages (i.e., the relative difference between the lowest and the highest) increased substantially in Canada between

1949 and 1965, while there was no change in the United States, there was a definite, though not large, shift of Canadian employment toward the lower wage industries and of United States employment toward the higher.

The study is completed in Section IV with a brief consideration of regional wage variation in both countries. It is also the only part of the study that includes comparisons of wage rates for specified occupations and skills; what are called average hourly earnings, largely in Section III but in parts of Sections II and IV as well, are in fact averages of gross wage-earner payroll per hour paid for.

On the basis of a comparison of average hourly wages for all manufacturing by region, it was found that the Canada-United States differential was lowest in western Canada (Alberta and British Columbia) compared with the adjacent regions of the United States, and was highest in the Atlantic region of Canada compared with the New England states.

A comparison of wage rates for selected maintenance jobs and for labourers in manufacturing for a large number of Canadian and United States cities in 1966 and 1967 showed the Canadian rates as tending to be 17 to 23 per cent less than the averages for the United States. A comparison of wage rates in building construction showed the Canadian rates to average about 30 per cent less. An analysis of wage rates by size of city showed that higher rates were generally the rule in the largest cities. Since there are many more large cities in the United States than in Canada, this may be one reason for wages being higher in that country.

Section I

A Comparison of National Income and its Components in Canada and the United States

The greater part of this study is focussed on labour income in the form of wages and salaries (supplementary labour income, or "fringe benefits" being unfortunately neglected but unavoidably so because time and resources did not permit their inclusion). A suitable introduction to such a study is to lead into it with a brief consideration of national income in Canada and the United States. National income is substantially the total output of the economy after allowing for indirect taxes and depreciation.^{1/} In broad terms this income is divided among workers and investors. Before the study concentrates on labour income only, it is useful to compare the full amount of national income in each country, how it has been growing and how it has been distributed. In doing this, it is useful also to consider the total output of each economy, what we call gross national product.

Any attempt at an intensive analysis of the national accounts of either one of these countries, let alone both, encounters problems of definition, classification and computation. And yet merely to glance over the field incurs the risk that comes with oversimplification, namely, that of misleading the reader and perhaps distorting the facts. However, this latter option must be chosen after safeguards have been taken and suitable warnings issued.

This analysis is necessarily brief not only because the national accounts are not the primary concern of this study and because an analysis in depth acquires a complexity only to be tolerated by a specialist, but also because some important work in this field has been done in recent years, which is commended to the attention of the reader with a special interest in it. ^{2/}

^{1/} This is a definition that will not satisfy the serious student of national accounts. It is more fully defined in footnotes 3 and 4 of this section. For further elaboration see D.B.S. National Accounts, Income and Expenditure, 1926-1956, beginning at page 110, and Richard & Nancy Ruggles: National Income Accounts and Income Analysis, second edition, McGraw-Hill, 1956.

^{2/} The most important is a paper by S.A. Goldberg, "Long-Run Changes in the Distribution of Income by Factor Shares in Canada", with a supplement by F.H. Leacy, "Short-Term Fluctuations of Wage Shares", in National Bureau of Economic Research: The Behaviour of Income Shares, Selected Theoretical and Empirical Issues, Studies in Income and Wealth, Vol. 27, Princeton University Press, 1964.

See also -

N.H. Lithwick: Prices, Productivity and Canada's Competitive Position, Private Planning Association of Canada, 1967.

D.J. Daly and D. Walters: Factors in Canada - United States Real Income Differences, Economic Council of Canada, mimeographed, 1967.

Derek A. White: Business Cycles in Canada, Economic Council of Canada, Staff Study No. 17, 1967, Queen's Printer, Ottawa.

Essentially, our interest here is in answering two questions: how does the output of the Canadian economy, divided by its population, compare with a similar division of the output of the U.S. economy; and how is the national income shared among the different classes of recipients?

The first question will be answered by an examination of gross national product per capita over the postwar years in current dollars and constant (1949) dollars. As a measure of how much the individual citizen has benefited from expanding national output, it is best to examine what in Canadian terminology is called net national income at factor cost and in the United States, national income. This is gross national product, minus net indirect taxes (after deducting subsidies)^{3/} and capital consumption allowances.^{4/}

^{3/} The difference between gross national product at market price and at factor cost is essentially the amount of net indirect taxes and allowances for depreciation, the principle being that the price of an item consists of the cost of producing it; that is, returns to the different factors of production, including profit plus depreciation charges and taxes on the materials. Once these taxes (net, after subsidies) and depreciation charges are deducted, the remainder is the sum total of factor costs. In both countries national income (the U.S. term) or net national income at factor cost (the Canadian term) is reached after deducting capital consumption allowances, net indirect taxes, and "residual error of estimate" (Canadian term) or "statistical discrepancy" (U.S. term). One item, business transfer payments, is also deducted in the U.S. accounts for which no allowance is made in the Canadian accounts; it comprises corporate gifts to non-profit institutions, consumer bad debts and a few other minor items, but it is very small, amounting to less than one half of one per cent in 1967.

^{4/} Capital consumption allowances and inventory valuation adjustments should not be confused. The former represents that part of national output devoted to capital replacement and, as explained, is not part of national income; the latter constitutes a measure of change in the value of unsold inventories resulting from increases or decreases in prices, and is included in national income, although for some purposes it is deducted (see F.H. Leacy: op. cit. pp. 257-258). For a detailed definition of Canadian capital consumption allowances, see D.B.S.: National Accounts, 1926-1956, paragraphs 59 to 71; a U.S. definition can be found in the Introduction to "The National Income and Product Accounts of the United States 1929-1965", a supplement to the Survey of Current Business, August 1966. See also Ruggles: op. cit., pages 113 to 115. It should be pointed out that differences in Canadian and U.S. concepts of and methods of calculating capital consumption allowances do affect the comparability of the estimates of gross national product and national income of the two countries, although no attempt can be made here to estimate the extent of the effect.

The tables to follow contain data for Canada and the United States for 1947 to 1967 inclusive in this order: GNP in current and constant (1949) dollars, per capita in constant dollars, per worker in constant dollars, national income in current dollars^{5/} in toto, then per capita and per worker. These tables and the analysis of them constitute the first part of this section. In the second and last part, there are tables on national income in current dollars, as distributed according to factor shares, and on net domestic product (to be described in that part of the text) in current dollars in the nonagricultural business sector, distributed by factor shares.

The analysis will be brief because the tables and charts speak for themselves.

A Comparison of Canadian and U.S. Growth

In aggregate, current dollar terms, GNP has increased at a faster rate in Canada than in the United States. Between 1949 and 1967 it increased 279.9 per cent in Canada, 32.2 per cent more than the U.S. increase of 211.8 per cent (Table I-1). Although there have been a few instances of greater year-to-year increases in the United States than in Canada, these have been exceptions. Out of the 20 periods between 1947 and 1967, there have been seven such periods, one when there was no difference between the two countries. GNP actually declined slightly between 1948 and 1949 in the United States, by 0.4 per cent, while it grew in Canada 8.1 per cent. Between 1953 and 1954 Canadian GNP declined 0.6 per cent while it did not change in the United States. From 1958 to 1961 the Canadian rate of increase was exceeded by the U.S. rate. This has also been so in the most recent period on record, 1966 to 1967.

However, when we allow for price changes by expressing GNP in constant dollars, the 32.2 per cent Canadian margin of increase since 1949 is reduced to 17.8 per cent. This is because of the more rapid increase of Canadian prices in the postwar period. Nevertheless, the effect of the greater Canadian price increases should not be exaggerated. A recent study by an economist with the Dominion Bureau of Statistics^{6/} shows the Canadian growth rate of gross national product, in constant dollar terms, to have exceeded the U.S. rate through the postwar years (1946 to 1967 inclusive), 4.3 per cent per annum compared with 3.7 per cent, and the higher growth rate of recent years (1961 to 1967) continued to be higher for Canada, 5.9 per cent per annum compared with 5.3. It might be observed, in passing, that the relative Canadian advantage has diminished somewhat, since 4.3 exceeds 3.7 more than 5.9 exceeds 5.3. Even for the most recent year, Canadian GNP for 1967, in constant 1957 dollars, was 2.8 per cent greater than in 1966 while U.S. GNP for that year, in constant 1958 dollars, increased 2.4 per cent. Furthermore, there is good reason to believe that when revised Canadian GNP figures are released

^{5/} Because of the lack of a ready means of deflating national income, it is presented here only in current dollars and not also in constant dollars.

^{6/} Nicholas C. Vlassopoulos: "Some Recent Economic Developments in Canada and the United States", D.B.S., Canadian Statistical Review, November 1968.

for recent years (which will probably have been published by the time this study appears in print), they will be significantly higher. A report released by D.B.S. in the summer of 1968^{7/} shows the annual rate of growth for real domestic product between 1946 and 1967, to be 4.7 per cent on the basis of the revised index, compared with 4.5 per cent on the basis of the old index; the revised rate is 4.4 per cent greater. Therefore, in comparing Canadian and U.S. GNP and national income in the following pages we must recognize the likelihood of substantial upward revisions in these quantities that will improve the picture of Canada's relative position with the United States.

The comparison does become less favourable for Canada when allowance is made for growth of population and the labour force. Between 1949 and 1967 the population of Canada increased 51.7 per cent compared with a U.S. increase of 33.0 per cent. Over the same period the Canadian labour force increased 52.2 per cent compared with a U.S. increase of 26.2 per cent. However, this comparison must be modified slightly in the light of the fact that the Canadian labour force data cover all people 14 years of age and over who are gainfully employed or seeking employment while the U.S. labour force covers those 16 years old and over. Until the end of 1966 U.S. data were published both ways and the 1949 to 1966 growth of the U.S. labour force, on the basis of 14-year-olds and over, was 25.8 per cent, compared with 46.8 per cent in Canada; over the same years the U.S. labour force increased 23.6 per cent on the basis of 16-year-olds and over. In the former case the Canadian increase was 81.4 per cent greater than the U.S. increase and in the latter case, 98.3 per cent greater. Were this to have held true in 1967 as well, the U.S. increase from 1949 to 1967 would have been 28.6 per cent instead of the reported 26.2 per cent, and the Canadian increase of 52.2 per cent would have been 82.5 per cent greater instead of 99.2 per cent greater. It would be correct to say that the Canadian labour force, in the postwar years, has grown at least 80 per cent faster than the U.S. labour force and the Canadian population almost 60 per cent faster. Whatever this may mean for better future performance in Canada, the greater increase in population and labour force has meant that in spite of a greater rate of increase in aggregate real gross national product, Canada has not done as well as the United States on a per capita and per worker basis.

Between 1949 and 1967 GNP per capita in constant dollars increased 49.4 per cent in Canada and 56.1 per cent in the United States (Table I-2). It means that, in constant dollars, GNP per capita was 47.3 per cent higher in the United States than in Canada. From 1947 to 1967 the ratio averaged 145.1, and for the more recent years, 1961 to 1967, it averaged slightly higher at 146.6, and in 1967 it was, as we have seen, 147.3. At this rate Canadians appear to be facing a widening gap with the United States in real product per person. But part of the recent trend is a result of a more rapid rate of price increases in Canada, which may slow down; and the gap may narrow when the expected upward revisions in Canadian GNP are published. On a per worker basis the comparison looks no better from the Canadian point of view, in fact, slightly worse. Real GNP per worker increased 48.3 per cent in Canada and 63.8 per cent in the United States (Table I-3).

^{7/} D.B.S.: Indexes of Real Domestic Product by Industry (1961 Base), Catalogue No. 61-506.

However, for certain periods the Canadian increase per capita and per worker was quite different to that of the United States. Increase of real GNP per capita for different periods is compared below:

	Canada	United States
1949-1966	48.1%	54.0%
1951-1966	36.0	34.6
1953-1966	28.6	29.3
1957-1966	24.0	27.6
1961-1966	23.8	23.2
1966-1967	0.8	1.4

It is between 1949 and 1966 and 1957 and 1966 that Canada's rate of increase is noticeably less. Between 1961 and 1966 both countries had about the same rate of increase.

The comparison on a per worker basis for the same periods is as follows

	Canada	United States
1949-1966	49.7%	63.3%
1951-1966	36.5	41.1
1953-1966	26.2	33.5
1957-1966	21.5	28.6
1961-1966	19.9	22.8
1966-1967	-0.9	0.3

The difference is least for the 1951-1966 and 1961-1966 periods and greatest for 1957 to 1966. However, unlike the per capita data above, the Canadian increases are less than the U.S. increases for all periods.

The fact that the U.S. Labour force data used for Tables I-3 and I-6 do not include members of the labour force who are 14 or 15 years old, which Canadian data do include, means that U.S. data on a per worker basis are enhanced somewhat, compared with Canadian data, because they have a relatively smaller denominator as the basis of their computations. The effect of this difference has not been computed for the comparison of real GNP per worker but it has for national income per worker (Table I-6). U.S. national income per worker tended to be 5 per cent higher when computed on the basis of a labour force of age 16 and over instead of age 14 and over. Applying this difference to 1949 and 1967 real GNP per worker in the United States (Table I-3), the 1949 figure is reduced from \$4,116 to \$3,920 and the 1967 figure from \$6,742 to \$6,421; U.S./Canada ratio for 1949 is reduced from 128.2 to 122.1 and for 1967 from 141.7 to 134.9; the U.S. index does not change because the values for 1949 and 1967 have both been deflated by the same amount.

In terms of national income, rather than gross national product, the comparison becomes a little less favourable for Canada (Table I-4). From 1949 to 1966 Canadian national income increased 258.6 per cent in current dollars,^{8/} compared with 200.2 per cent in the United States. This represents a Canadian margin of 29.2 per cent over

^{8/} It has not been possible to produce national income data in constant dollars for this study.

U.S. growth, compared with 32.2 per cent for GNP. This study is not intended to be an analysis of the national accounts of Canada and the United States, so only a tentative explanation will be offered. Over the years - the postwar years in any case - capital consumption allowances and indirect taxes have claimed a greater percentage of Canadian than of U.S. gross national product. Capital consumption has ranged from 10 to 13 per cent in Canada, being around 10.5 per cent in 1949 and 1950 and around 11.5 per cent in recent years. In the United States, while the proportion is much smaller than in Canada, it does appear to be increasing; in 1949 and 1950 it was about 6.5 per cent, but by 1957 it was 8.4 per cent and it has remained at about that level since.

While the proportion of GNP ascribed to capital consumption over the past 15 years has increased about 10 per cent in Canada, it has increased about 30 per cent in the United States. This is not to suggest some kind of long-run trend, which may or may not be developing, but it does explain why the share of GNP left over for consumption has been increasing in Canada, compared with the United States, although the share is still much greater in the latter country. This development has been offset somewhat by an increase in the share of Canadian GNP going to net indirect taxes; in recent years it has averaged about 13.5 per cent compared with little more than 11 per cent 15 years earlier. In the United States the share has not only been smaller but remained rather constant, at 8 to 9 per cent.

What has just been said merely describes certain differences and trends in Canadian and U.S. national accounts; it does not purport to describe differences in the national economies, which would require a critical and intensive analysis of the national accounts. The above references, especially to capital consumption allowances, are to the amounts claimed for them in the national accounts, and they may or may not reflect economic changes.^{9/}

In per capita terms national income increased 136.4 per cent between 1949 and 1967 in Canada and 125.7 per cent in the United States (Table I-5), while per worker the increase was 134.2 per cent in Canada and 136.5 per cent in the United States (Table I-6). This is because the greater increase of the Canadian labour force compared with that in the United States greatly exceeded the Canadian margin over U.S. population growth. For the same reason, while the U.S./Canada ratio of per capita income declined from 151.4 in 1949 to 144.5 in 1967, it widened on a per worker basis from 135.5 to 138.9.

^{9/}The influence of different measures of capital consumption allowances is discussed briefly by M.C. Urquhart on pages 274 to 276 of N.B.E.R. study, Vol. 27, cited in footnote 2.

It has already been pointed out that the United States no longer publishes labour force data for 14- and 15-year-olds although Canada does. However, U.S. data are available with and without the 14- and 15-year-olds for 1947 to 1966 inclusive. The per worker U.S. data in Tables I-3 and I-6 are based on the 16 years of age and over labour force data because that is the only way U.S. labour force data are now presented. However, estimates of U.S. national income per worker based on a labour force 14 years of age and over have been made for 1947 to 1965 for this study. A few years are shown below to illustrate the difference:

	Canada* (unrevised)	United States		U.S./Canada	
		A (14 years plus)	B (16 years plus)	A	B*
1949	\$2,530	\$3,347	\$3,480	132.3	137.5
1953	3,518	4,370	4,672	124.2	132.8
1957	3,917	5,039	5,326	128.6	136.0
1961	4,248	5,624	5,921	132.4	139.4
1965	5,368	7,047	7,416	131.3	138.2

*taken from Table I-6

On the average, through the years 1947 to 1965, income per worker on the basis of a labour force including 16-year-olds and over was 5.5 per cent higher than on the basis of a labour force including 14-year-olds and over; or to put it the other way, data on the latter basis average out at 5.2 per cent less. The effect of making the comparison on the basis of the new (16 years and over) U.S. labour force estimates is to enhance the U.S. figure and increase the U.S./Canada ratio. Thus, on the old basis the ratio in 1949 and 1965 would be 132.3 and 131.3, respectively, and on the new basis 137.5 and 138.2. Therefore, the apparent widening of the differential in national income per worker between 1949 and 1965 was statistical rather than real, and the widening between 1949 and 1967, mentioned above, may be of the same nature, although this cannot be ascertained because, as has been pointed out, U.S. labour force data are not available for 1967 on the old basis.

By way of summary: While the postwar Canadian increase in gross national product exceeded U.S. increase in aggregate terms, the fact that the rate of growth of the Canadian population and labour force greatly exceeded U.S. growth, combined with a more rapid increase of prices in Canada, meant that GNP per capita and per worker showed a slower growth, in constant dollars, in Canada than in the United States. It has not been possible to deflate national income for price change, as was done with GNP per capita and per worker, but inasmuch as the latter showed a decline in Canada vis-à-vis the United States, the same can certainly be assumed to have happened in the case of national income. The conclusion must then be that average real income in Canada is no closer to the U.S. level now than it was 15 years ago.

Distribution of National Income by Factor Shares

Under the above heading, two questions are important for this study: Are there any significant differences in the Canadian and U.S. distribution of national income among factor shares? Are there any significant trends? A full and detailed answer to each of these questions would require an intensive analysis. However, without going to such lengths it is possible to give broad answers to these questions.

Distribution of total national income as labour income, investment income and net unincorporated business income is shown in Table I-7, and a similar distribution of net domestic product in the nonfarm business sector appears in Table I-8. It may be said that income of unincorporated business (including professional practitioners and small business) is partly income of "entrepreneurship", to coin a word, which is a rather special kind of labour (viz. management of an enterprise), and partly investment income, although the two cannot be separated statistically. Whatever the conceptual inadequacies of such a three-way breakdown and the statistical problems associated with it,^{10/} it is best suited to our analysis and the necessary data can, with relative ease, be obtained from published sources. (A concept of "profit-type income" has been introduced into the U.S. national accounts but fortunately it complements rather than supersedes the conventional breakdown.)

It has been felt desirable to examine distribution not only of national income in the total economy (Table I-7) but of net domestic product for the nonfarm business sector (Table I-8) as well. The difference between national income and net domestic product is explained in notes to Table I-8; essentially, the difference is that net domestic product excludes net payments to nonresidents, a large part of which is payment of dividends and interest to foreign owners of Canadian investments. Because investment income has no meaning in the government sector (government-operated commercial-type businesses are not part of the government sector), has little meaning, if any, in the personal sector, and is rather different in nature in the farm sector, the analysis of net domestic product has eliminated these parts of the economy so as to concentrate on the nonfarm business sector. However, the total economy is considered first.

Labour's share tends to be about two-thirds of the national income in the total economy of both countries. The proportions shown in Table I-7, averaged for 1947 to 1967, were 65.6 per cent for Canada and 68.3 per cent for the United States; labour's share in the United States has been 4.1 per cent greater than in Canada. Net investment income averaged 19.5 per cent for Canada and 18.9 per cent for the United States, the U.S. proportion being 3.1 per cent less. Net unincorporated business income averaged out to 15.0 per cent in Canada and 12.8 per cent in the United States; thus the U.S. proportion was some 14.7 per cent less. In short, labour received a slightly smaller share of national income in Canada than in the United States while the share going to investment income and "small business" was greater.

The labour share has tended to increase in both countries but the U.S. proportion has continued to be greater although the margin has narrowed. The Canadian average for 1947 to 1951 was 60.3 and the U.S. average 63.5, some 5.3 per cent more; the Canadian average for 1952 to 1961 was 66.5 and the U.S. average 69.1, some 3.9 per cent more; the Canadian average for 1962 to 1967 was 68.4 compared with the U.S. average of 70.8 which was 3.5 per cent greater. The U.S. margin narrowed from 5.3 per cent to 3.9 per cent to 3.5 per cent. The narrowing is within a small range, so, as has been said before, the significance of such a movement - whether it is essentially random or has special

^{10/} An interesting discussion of this problem appears in Kurt W. Rothschild: Income Distribution by Factor Shares in Post-War Western Europe, OECD document MS/S.67.124, 1967, mimeographed. See also S.A. Goldberg: *op.cit.*, p. 199.

meaning - is a matter partly of judgment but also for more comprehensive research than is undertaken here. Of course, large fluctuations or secular trends are not to be expected in a short period when it is realized that in 1967, for example, 1 per cent of national income in Canada was 359 million dollars and over 6½ billion dollars in the United States.

The apparent trend in both countries towards an increased labour share is consistent with a long-run trend that saw labour's share in Canada averaging only 56.7 per cent from 1926 to 1930.^{11/}

The investment income share remained almost steady, at a 1947-1951 average of 19.4 per cent and a 1962-1967 average of 19.7 per cent in Canada and at 19.5 and 19.2 per cent in the United States. The U.S. and Canadian shares were virtually the same in the early period and the U.S. share slightly less in the recent period. The unincorporated business income share has been greater in Canada, averaging 15.0 per cent, than in the United States, averaging 12.8 per cent, but the margin has been narrowing, from 20.3 and 17.0 for Canada and the United States respectively in 1947 to 1951, to 11.9 and 10.0 in 1962 to 1967. At least some of the increase in the labour share can be attributed to the decline between 1947 and 1967 in this "small business" share in both countries.

The shares of net domestic product in the nonfarm business sector (see Table I-8) are different from the shares of national income for investment and unincorporated business partly because farm income is not included here in this last category, thus reducing the size of the "small business" share and increasing the investment income share. From 1947 to 1967 the Canadian labour share averaged less than it was in relation to national income for the whole economy, 63.7 per cent compared with 65.6 per cent. The difference was less in the United States, 67.5 per cent compared with 68.3 per cent. The investment share was considerably larger on the average, in Canada, 29.9 per cent compared with 19.5 per cent as a share of total national income and in the United States 21.4 per cent compared with 18.9 per cent.

The somewhat smaller labour share as part of net domestic product, nonfarm business sector, when compared with the share of total national income (for Canada, 63.7 per cent compared with 65.6 per cent, for 1947 to 1967, and for the United States, 67.5 per cent compared with 68.3 per cent) is explained by the fact that investment income is very largely found only in the business sector, the government and personal sectors showing only labour income (government-owned commercial enterprises are put in the business sector). Thus total national income, encompassing all sectors, includes relatively more labour income but not much more investment income than is found in the business sector. (The only other investment income is in the non-residents' sector, and this is not included in gross or net domestic product.) Because investment income originates in the business sector, it is best to compare labour and investment shares in this sector when looking for indications of any trend.

One trend is clear from both Tables I-7 and I-8 and that is the relative decline in both countries of net unincorporated business income. While some of the increase in labour's share has been explained

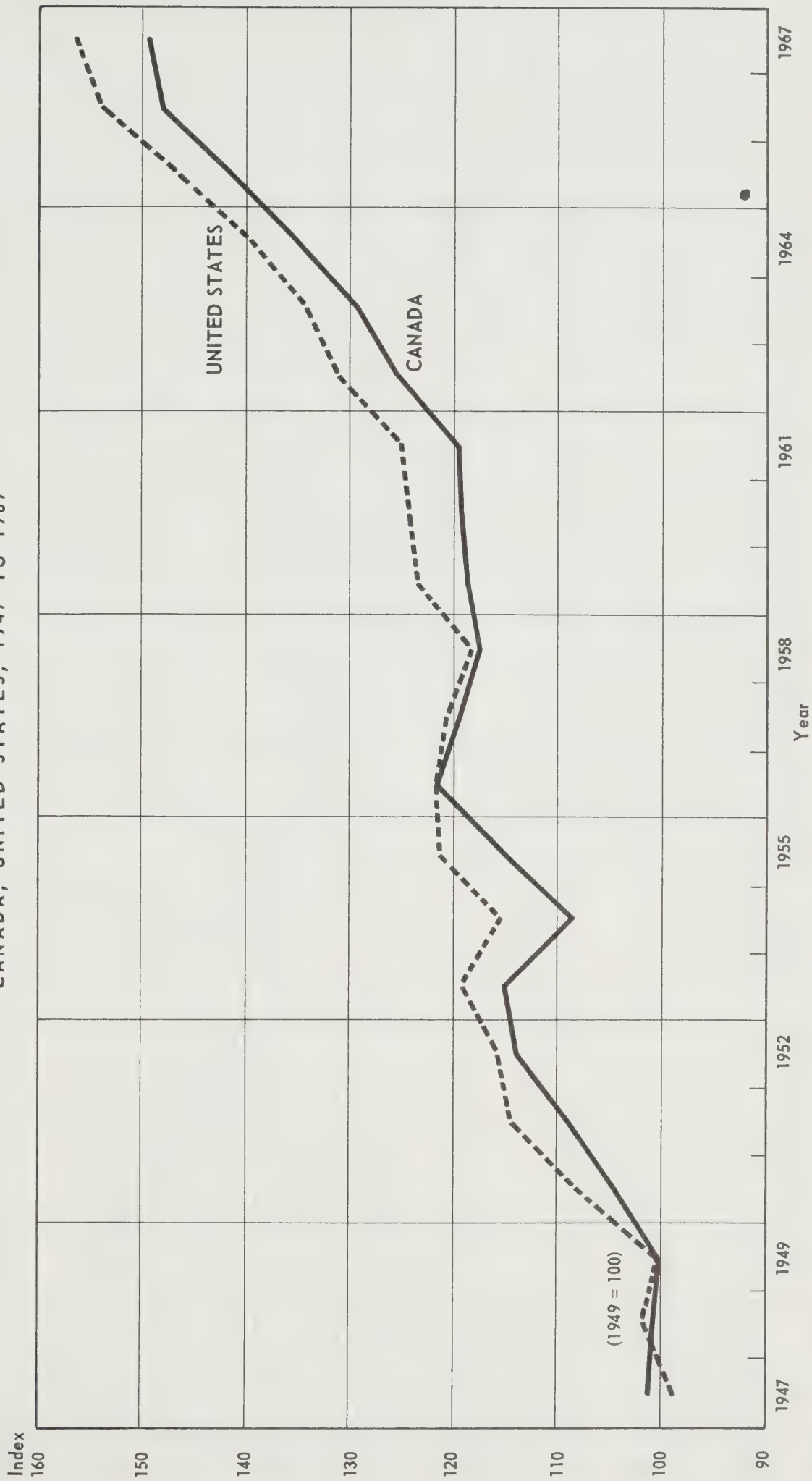
^{11/} S.A. Goldberg: op. cit. Mr. Goldberg points out that much of this trend is attributable to interindustry shifts, especially the decline of agriculture.

by the decline of agriculture (see footnote 11 in this section), it cannot explain it in Table I-8 where agriculture is excluded. The fact that the investment share in Table I-8 does not change greatly over the years in the sense of exhibiting any trend means that the labour share has increased at least in part because of the reduced share going to "small business".

By way of a quick conclusion, it can be pointed out that the similarities of Canadian and U.S. factor income distribution are more significant than the differences, especially if the two countries are compared with other countries in the world.^{12/} Trends in shifts of factor shares tend to have moved in the same direction in both countries, at least in the postwar years. The notable differences are that the labour share is smaller in Canada than in the United States, while the converse is the case with net investment income.

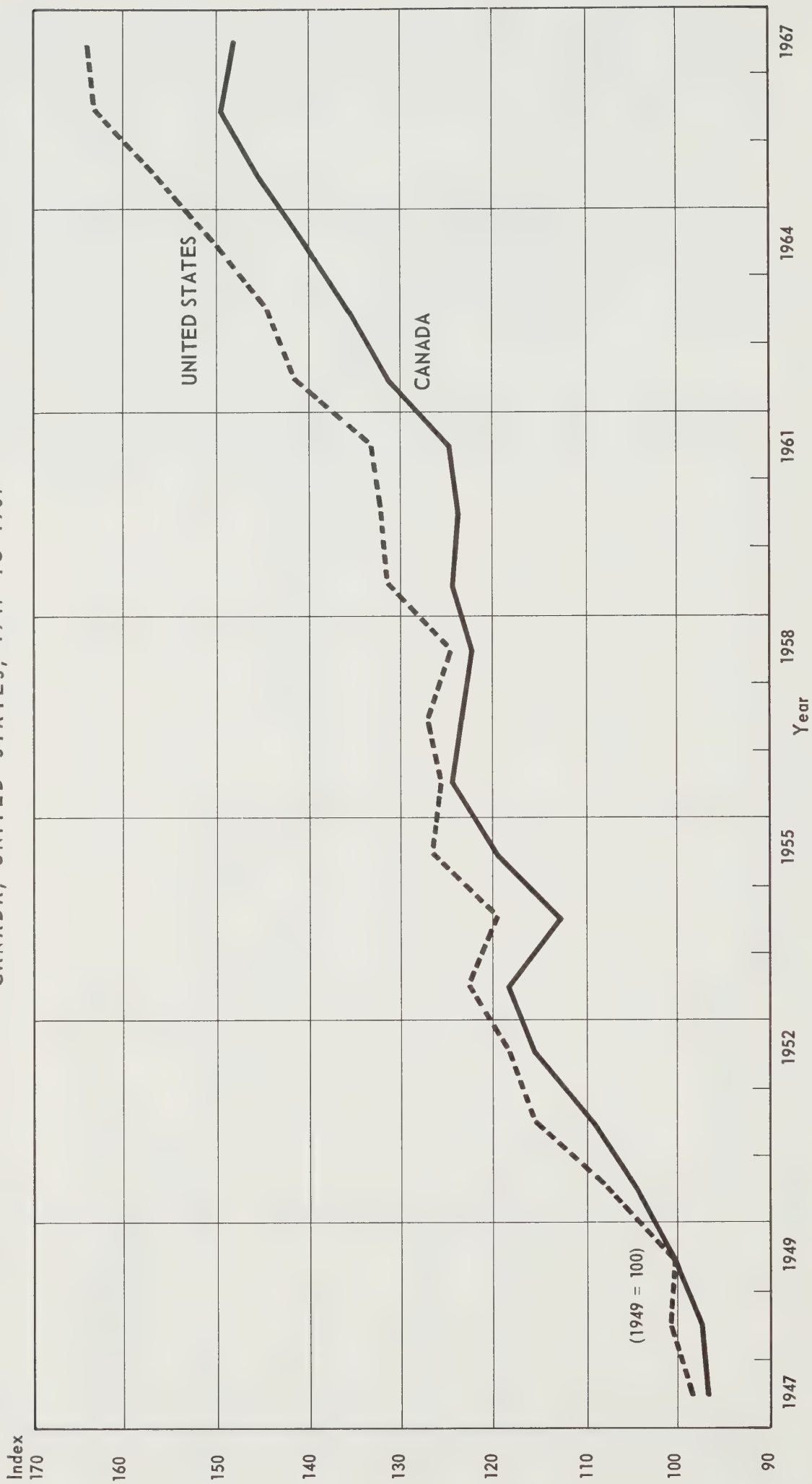
^{12/} See H.A. Turner and H. Zoetewij: Prices, Wages, and Incomes Policies in Industrialised Market Economies, I.L.O., Geneva, 1966, Table VIII, pages 33 to 35; also Kurt W. Rothschild: op. cit.

Chart I-1
INDEXES OF GROSS NATIONAL PRODUCT PER CAPITA IN CONSTANT (1949) DOLLARS
CANADA, UNITED STATES, 1947 TO 1967



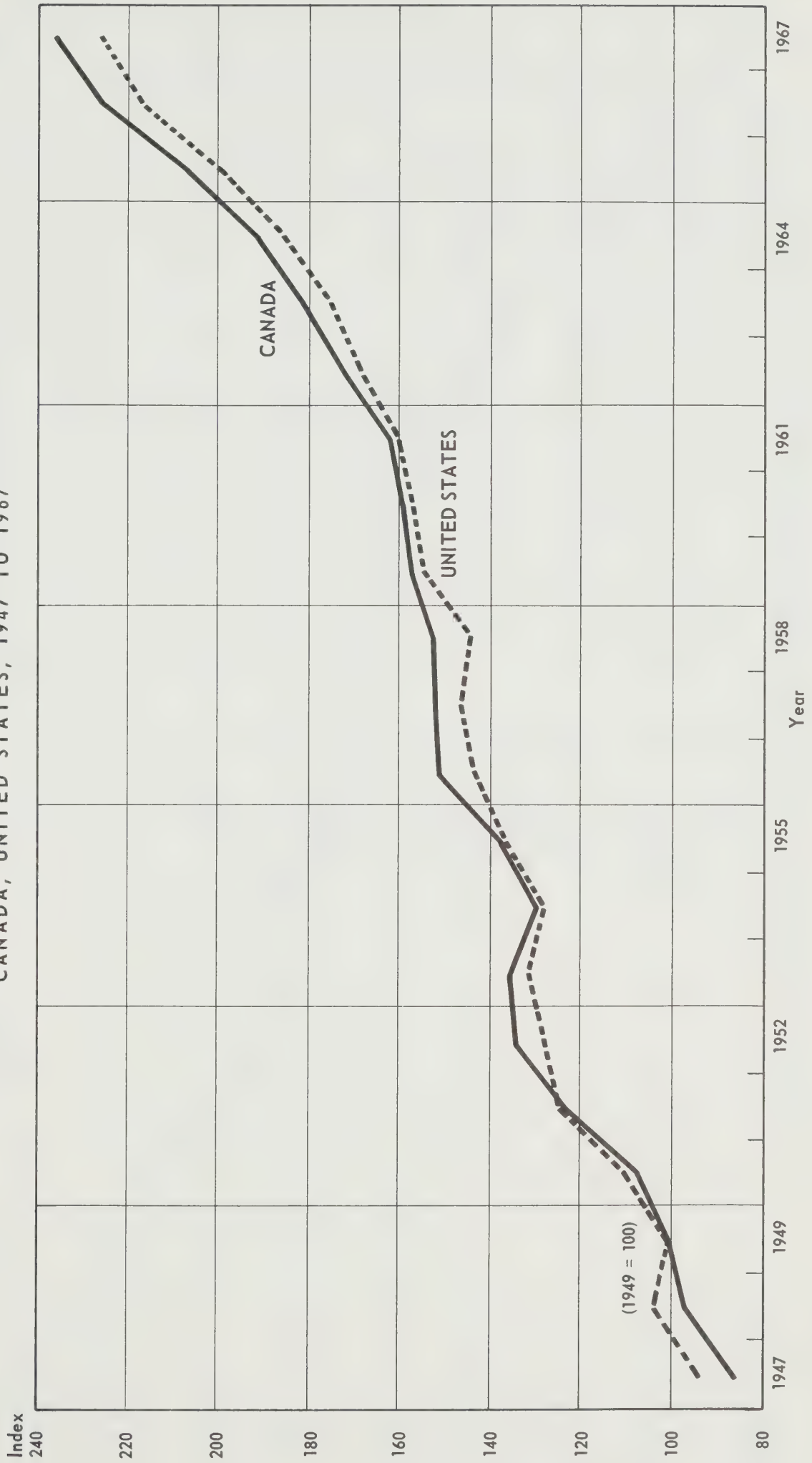
Source: Table I-2.

Chart I-2
INDEXES OF GROSS NATIONAL PRODUCT PER WORKER IN CONSTANT (1949) DOLLARS
CANADA, UNITED STATES, 1947 TO 1967



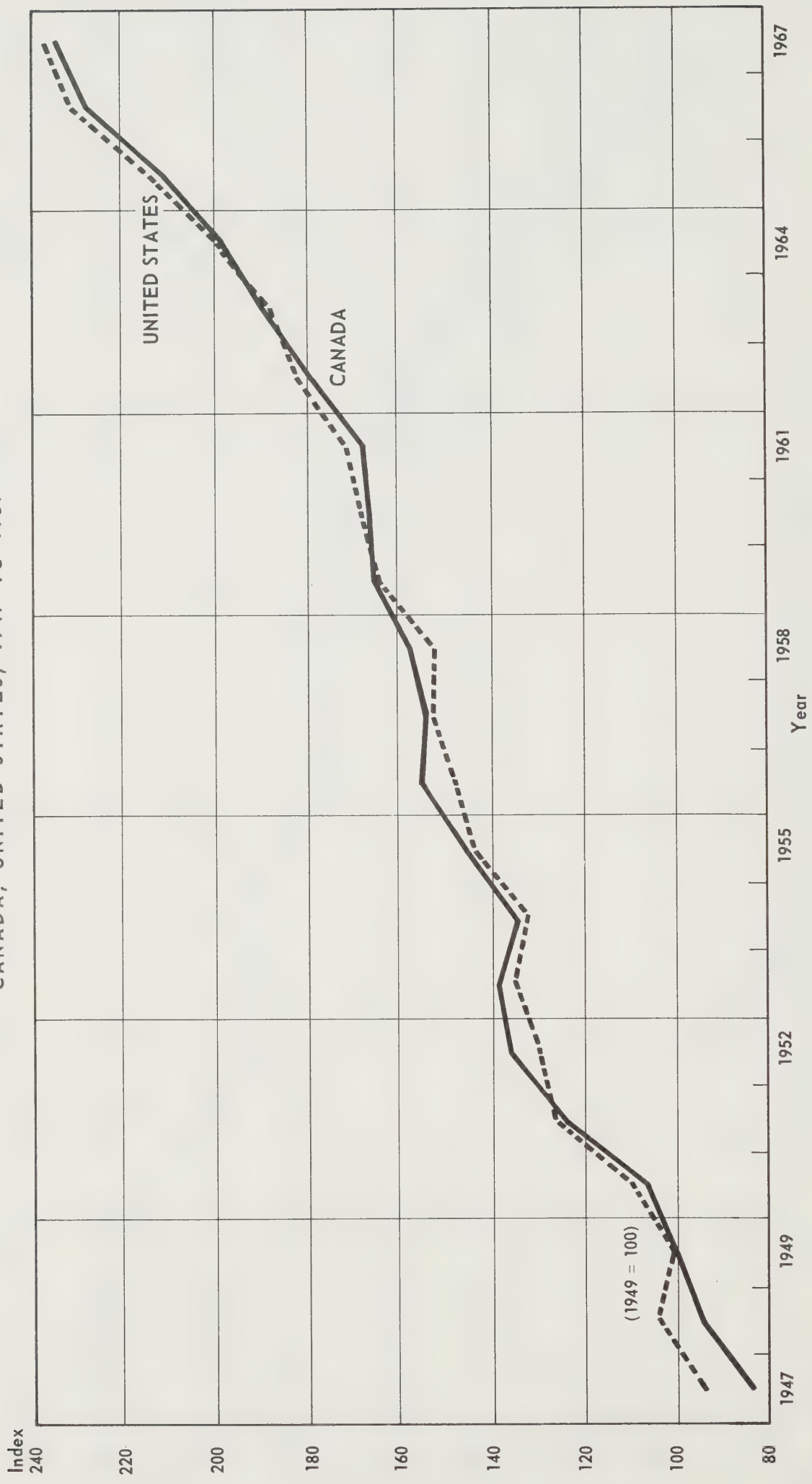
Source: Table I-3.

Chart 1-3
INDEXES OF NATIONAL INCOME PER CAPITA, CURRENT DOLLARS
CANADA, UNITED STATES, 1947 TO 1967



Source: Table 1-5.

Chart 1-4
INDEXES OF NATIONAL INCOME PER WORKER, CURRENT DOLLARS
CANADA, UNITED STATES, 1947 TO 1967



Source: Table 1-6.

Table I-1

Gross National Product, Canada—United States, Current
Dollars, Constant (1949) Dollars, 1947 to 1967

Year	Canada				United States			
	Billions of Current \$	Index	Billions of 1949 \$	Index	Billions of Current \$	Index	Billions of 1949 \$	Index
1947	13.17	80.6	15.45	94.6	231.32	90.2	245.30	95.6
1948	15.12	92.5	15.73	96.3	257.56	100.4	256.02	99.8
1949	16.34	100.0	16.34	100.0	256.48	100.0	256.48	100.0
1950	18.00	110.2	17.47	106.9	284.76	111.0	280.83	109.5
1951	21.17	129.6	18.55	113.5	328.40	128.0	303.51	118.3
1952	24.00	146.9	20.03	122.6	345.49	134.7	312.38	121.8
1953	25.02	153.1	20.79	127.2	364.59	142.2	326.69	127.4
1954	24.87	152.2	20.19	123.6	364.84	142.2	322.01	125.5
1955	27.13	166.0	21.92	134.1	397.96	155.2	346.35	135.0
1956	30.58	187.1	23.81	145.7	419.23	163.5	352.89	137.6
1957	31.91	195.3	24.11	147.6	441.13	172.0	357.77	139.5
1958	32.89	201.3	24.40	149.3	447.33	174.4	353.90	138.0
1959	34.91	213.6	25.24	154.5	483.66	188.6	376.68	146.9
1960	36.29	222.1	25.85	158.2	503.73	196.4	385.70	150.4
1961	37.47	229.3	26.52	162.3	520.09	202.8	393.41	153.4
1962	40.58	248.3	28.29	173.1	560.32	218.5	418.77	163.3
1963	43.42	265.7	29.74	182.0	590.50	230.2	435.79	169.9
1964	47.39	290.0	31.65	193.7	632.41	246.6	459.93	179.3
1965	52.20	319.5	33.83	207.0	684.88	267.0	488.50	190.5
1966	58.12	355.7	36.03	220.5	747.57	291.5	519.51	202.6
1967	62.07	379.9	37.04	226.7	789.66	311.8	532.47	207.6

Sources:

For Canada, D.B.S., National Accounts, Income and Expenditure, 1926-1956, and subsequent annual issues (Cat. No. 13-201).

For United States, For 1947 to 1963, Department of Commerce, "The National Income and Product Accounts of the United States, 1929-1965," a supplement to Survey of Current Business, August 1966; for 1964 to 1967, Survey of Current Business, July 1968.

Table I-2

Gross National Product Per Capita in Constant (1949)
Dollars, Canada—United States, 1947 to 1967

Year	Canada		United States		U.S./Canada
	Per Capita	Index	Per Capita	Index	Ratio
	\$		\$		
1947	1,231	101.3	1,695	98.9	137.7
1948	1,227	101.0	1,739	101.5	141.7
1949	1,215	100.0	1,713	100.0	141.0
1950	1,274	104.9	1,844	107.6	144.7
1951	1,324	109.0	1,960	114.4	148.0
1952	1,385	114.0	1,983	115.8	143.2
1953	1,400	115.2	2,040	119.1	145.7
1954	1,320	108.6	1,975	115.3	149.6
1955	1,396	114.9	2,087	121.8	149.5
1956	1,481	121.9	2,089	121.9	141.1
1957	1,452	119.5	2,068	120.7	142.4
1958	1,429	117.6	2,024	118.2	141.6
1959	1,444	118.8	2,118	123.6	146.7
1960	1,447	119.1	2,135	124.6	147.5
1961	1,454	119.7	2,141	125.0	147.2
1962	1,523	125.3	2,244	131.0	147.3
1963	1,571	129.3	2,301	134.3	146.5
1964	1,641	135.1	2,394	139.8	145.9
1965	1,723	141.8	2,510	146.5	145.7
1966	1,800	148.1	2,638	154.0	146.6
1967	1,815	149.4	2,674	156.1	147.3

Sources: As in Table I-1; population data for Canada found in D.B.S., National Accounts and for the United States, in the annual Statistical Abstract.

Table I-3

Gross National Product Per Worker^{1/} in Constant (1949)
Dollars, Canada—United States, 1947 to 1967

Year	Canada		United States		U.S./Canada
	Per Worker	Index	Per Worker	Index	Ratio
	\$		\$		
1947	3,107	96.8	4,061	98.7	130.7
1948	3,137	97.7	4,158	101.0	132.5
1949	3,210	100.0	4,116	100.0	128.2
1950	3,357	104.6	4,435	107.7	132.1
1951	3,519	109.6	4,765	115.8	135.4
1952	3,720	115.9	4,875	118.4	131.0
1953	3,806	118.6	5,037	122.4	132.3
1954	3,621	112.8	4,922	119.6	135.9
1955	3,850	119.9	5,196	126.2	135.0
1956	4,059	124.4	5,180	125.8	127.6
1957	3,955	123.2	5,229	127.0	132.2
1958	3,917	122.0	5,118	124.3	130.7
1959	3,987	124.2	5,397	131.1	135.4
1960	3,975	123.8	5,431	131.9	136.6
1961	4,007	124.8	5,474	133.0	136.6
1962	4,216	131.3	5,817	141.3	138.0
1963	4,347	135.4	5,955	144.7	137.0
1964	4,510	140.5	6,176	150.0	136.9
1965	4,684	145.9	6,445	156.6	137.6
1966	4,804	149.7	6,723	163.3	139.9
1967	4,759	148.3	6,742	163.8	141.7

^{1/} GNP (less military pay and allowances) is divided by total civilian labour force. It should be noted that the Canadian labour force includes workers 14 years of age and over but U.S. coverage does not extend to workers less than 16 years of age.

Sources: For GNP as in Table I-1; for Canadian labour force data, D.B.S., The Labour Force, November 1968 (Cat. No. 71-001); and for the U.S., Bureau of Labor Statistics, Employment and Earnings, December 1968.

Table I-4

National Income^{1/} Current Dollars,
Canada—United States, 1947 to 1967

Year	Canada		United States	
	Billions of \$	Index	Billions of \$	Index
1947	10.36	80.2	199.02	91.5
1948	12.00	93.0	224.18	103.1
1949	12.91	100.0	217.49	100.0
1950	14.16	109.7	241.07	110.8
1951	16.59	128.5	277.98	127.8
1952	18.65	144.5	291.38	134.0
1953	19.29	149.4	304.73	140.1
1954	19.03	147.4	303.14	139.4
1955	20.74	160.7	331.02	152.2
1956	23.17	179.5	350.80	161.3
1957	24.01	186.0	366.10	168.3
1958	25.01	193.7	367.76	169.1
1959	26.48	205.1	400.03	183.9
1960	27.43	212.5	414.52	190.6
1961	28.25	218.8	427.34	196.5
1962	30.65	237.4	457.69	210.4
1963	32.87	254.6	481.93	221.6
1964	35.40	274.2	518.07	238.2
1965	38.92	301.5	564.34	259.5
1966	43.31	335.5	620.76	285.4
1967	46.30	358.6	652.87	300.2

^{1/}What in U.S. terminology is called national income is called in Canada net national income at factor cost. But the concept is substantially the same in both countries. For definitions and a description of how the data are produced, see footnotes 3 and 4 in Section I.

Sources: As in Table I-1.

Table I-5

National Income Per Capita, Current Dollars,
Canada—United States, 1947 to 1967

Year	Canada		United States		U.S./Canada
	Per Capita	Index	Per Capita	Index	Ratio
	\$		\$		
1947	826	86.0	1,375	94.6	166.5
1948	936	97.5	1,523	104.8	162.7
1949	960	100.0	1,453	100.0	151.4
1950	1,033	107.6	1,583	108.9	153.2
1951	1,184	123.3	1,795	123.5	151.6
1952	1,290	134.4	1,849	127.3	143.3
1953	1,300	135.4	1,902	130.9	146.3
1954	1,245	129.7	1,860	128.0	149.4
1955	1,321	137.6	1,995	137.3	151.0
1956	1,441	150.1	2,077	142.9	144.1
1957	1,446	150.6	2,128	146.5	147.2
1958	1,464	152.5	2,103	144.7	143.6
1959	1,515	157.8	2,250	154.9	148.5
1960	1,535	159.9	2,294	157.9	149.4
1961	1,549	161.4	2,325	160.0	150.1
1962	1,651	172.0	2,451	168.9	148.5
1963	1,739	181.1	2,545	175.2	146.3
1964	1,835	191.1	2,697	185.6	147.0
1965	1,981	206.4	2,900	199.6	146.4
1966	2,164	225.4	3,152	216.9	145.7
1967	2,269	236.4	3,279	225.7	144.5

Sources: As in Tables I-1 and I-2.

Table I-6

National Income Per Worker, Current Dollars,
Canada--United States, 1947 to 1967

Year	Canada		United States		U.S./Canada
	Per Worker	Index	Per Worker	Index	Ratio
	\$		\$		
1947	2,080	82.2	3,285	94.4	157.9
1948	2,390	94.5	3,633	104.4	152.0
1949	2,530	100.0	3,480	100.0	137.5
1950	2,716	107.4	3,795	109.1	139.7
1951	3,137	124.0	4,342	124.8	138.4
1952	3,453	136.5	4,521	129.9	130.9
1953	3,518	139.1	4,672	134.3	132.8
1954	3,398	134.3	4,607	132.4	135.6
1955	3,626	143.3	4,940	142.0	136.2
1956	3,933	155.5	5,126	147.3	130.3
1957	3,917	154.8	5,326	153.0	136.0
1958	3,995	157.9	5,293	152.1	132.5
1959	4,163	164.5	5,707	164.0	137.1
1960	4,200	166.0	5,811	167.0	138.4
1961	4,248	167.9	5,921	170.1	139.4
1962	4,545	179.6	6,329	181.9	139.3
1963	4,782	189.0	6,558	188.4	137.1
1964	5,021	198.5	6,928	199.1	138.0
1965	5,368	212.2	7,416	213.1	138.2
1966	5,753	227.4	8,001	229.9	139.1
1967	5,926	234.2	8,231	236.5	138.9

Sources: As in Tables I-1 and I-3.

Table I - 7
National Income^{1/}, Total Economy by Factor Shares, Per Cent of Current Dollars,
Canada-United States, 1947 to 1967

	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Labour Income ^{2/} Canada U.S.A.	59.3 62.5	59.9 62.2	62.3 65.6	60.3 62.5	59.8 64.7	61.9 67.3	64.3 68.4	67.6 68.5	65.1 67.4	65.0 68.7	68.5 69.6	67.9 70.0	67.5 69.7	68.2 71.0	69.0 70.8	67.8 70.8	67.0 70.7	67.5 70.6	68.0 70.0	69.0 70.4	71.0 72.0
	19.7 19.6	18.9 17.5	17.4 18.2	20.7 21.8	20.2 20.3	19.0 18.3	18.8 18.4	18.3 18.3	20.3 20.0	20.4 19.1	18.9 18.4	18.8 17.3	20.0 18.7	19.4 17.8	19.4 17.9	19.6 18.3	20.1 18.7	20.7 19.3	20.4 20.0	19.0 19.9	18.5 19.0
Net Investment Income ^{3/} Canada U.S.A.																					
	21.0 17.9	21.1 20.2	20.3 16.2	19.0 15.6	20.0 15.0	19.0 14.4	16.9 13.3	14.1 13.2	14.6 12.3	14.6 12.2	12.6 12.0	13.3 12.7	12.5 11.7	12.4 11.2	11.6 11.3	12.6 11.0	12.9 10.6	11.8 10.0	11.6 10.0	11.9 9.4	10.5 9.0
Net Unincorporated Business Income ^{4/} Canada U.S.A.																					

^{1/} National Income is defined in a note to Table I-4. In this table, the data are not adjusted for inventory valuation adjustment.

^{2/} Labour income consists of salaries and supplementary labour income, including military pay and allowances.

^{3/} Net Investment income for Canada consists of corporation profits before taxes, rent, interest and miscellaneous investment income, not adjusted for inventory valuation adjustment. For the United States, it consists of rental income of persons, corporate profits, net interest, not adjusted for inventory valuation adjustment.

^{4/} Net unincorporated business income for Canada consists of net income of non-farm unincorporated business, accrued net income of farm operators from farm production, not adjusted for inventory valuation adjustment. For the United States, it consists of proprietors' income, not adjusted for inventory valuation adjustment; i.e., it includes business and professional and farm income.

SOURCES: As in Table I-1.

Table I-8

Net Domestic Product^{1/}, Nonfarm Business Sector^{2/}, Distributed by Factor Shares
in Per Cent of Current Dollars, Canada--United States, 1947 to 1967

	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Labour Income ^{2/}																					
Canada	60.3	62.0	63.2	60.3	61.7	63.8	64.8	65.8	63.4	63.5	65.5	65.0	63.8	64.5	64.3	63.7	63.2	63.1	63.9	65.8	66.7
U.S.	63.7	64.0	66.4	62.8	65.0	67.5	68.0	68.2	66.5	67.9	68.8	69.4	68.2	69.8	69.6	69.4	69.0	68.6	68.2	67.8	69.3
Net Investment Income ^{2/}																					
Canada	26.6	25.5	23.8	27.8	27.3	25.5	24.4	23.6	26.2	26.5	24.5	24.7	26.1	25.7	25.8	26.6	27.2	27.5	27.1	25.8	24.8
U.S.	23.0	23.1	20.6	24.6	23.0	20.7	20.7	20.4	22.2	20.9	20.1	19.2	20.8	19.8	19.8	20.3	21.1	21.7	22.6	23.0	21.7
Net Unincorporated Nonfarm Business Income ^{2/}																					
Canada	13.1	12.5	13.0	11.9	11.0	10.7	10.8	10.6	10.4	10.0	10.0	10.3	10.1	9.8	9.8	9.7	9.6	9.4	9.0	8.4	8.4
U.S.	13.3	12.9	13.0	12.6	12.0	11.8	11.3	11.4	11.3	11.2	11.1	11.4	11.0	10.4	10.6	10.3	9.9	9.7	9.2	9.1	9.0

^{1/}"Gross" and "net domestic product" are terms used in Canadian national accounts but not used in U.S. accounts. However, U.S. data can be adjusted to produce figures embodying the GDP concept. Gross domestic product at factor cost is gross national product at market prices, less indirect taxes (net of subsidies), from which is deducted income received from nonresidents, to which is added income paid to nonresidents.

(continued)

Table I-8 (concluded)

For net domestic product, capital consumption allowances are deducted from gross domestic product. The difference between net domestic product and net national income at factor cost is that income paid to nonresidents (net of income received from nonresidents) is added to the latter to produce the former. Inventory valuation adjustments are not included in national income data in Table I-7, or in this table; to be more accurate, no attempt has been made to deduct them because of the difficulty, in the case of the U.S. accounts of segregating inventory valuation and other adjustments for the business sector. For Canada net domestic product was computed for recent years from Table 19 of D.B.S., National Accounts Income and Expenditure 1966 (Cat. No. 13-201). For earlier years, similar tables in earlier D.B.S. reports were used. For the United States, data were first taken from U.S. Survey of Current Business, April 1967, Table 1, pages 21 and 22, where employee compensation, net interest, and "profit-type income", net of these amounts attributable to "rest of the world", were aggregated to produce a figure comparable to Canadian net domestic product.

2/ For Canadian business sector data were taken from Table 19 of the D.B.S. report mentioned in the above note. For nonfarm business sector, labour income and investment income attributable to agriculture, shown in line one of Tables 22 and 23 respectively, were deducted from lines 4 and 5 respectively of Table 19, and net farm income and adjustments on grain transactions (lines 6 and 7) were eliminated altogether. The net total, after these adjustments, is net domestic product for the nonfarm business sector. For the United States, data appearing in the table mentioned in the above note adjusted as described in that note, are further adjusted by deducting employee compensation, net interest and "profit-type" income attributable to farms, government and government enterprises.

3/ The three categories of income are as defined in the notes to Table I-7. For Canada, the data are taken from lines 4, 5 and 8 of Table 19 of the D.B.S. report cited above, after being adjusted, as described in the above notes. In the case of investment income, no adjustment is made for inventory valuation. For the United States, the net figure for "profit-type income", obtained after the adjustments described above, is further adjusted by deducting from it the amount reported as income of unincorporated enterprises (appearing in Table 6, page 7 of the April 1967 Survey of Current Business and similar tables in issues covering other years). The remainder is investment income.

Section II

Labour Income Compared – From the General to the Particular – the Recent Situation and Postwar Trends

In comparing labour income internationally, whether it be annual income (including that of wage and salary earners combined), weekly wages, hourly wages or any other measure, one of the first problems to resolve is the basis of comparison: Should the earnings of Canadian and United States workers be compared in Canadian and United States funds respectively (domestic dollars) or should the one currency be converted into the other to allow for the foreign exchange rate, and in a comparison of trends, should changes in the domestic cost of living be accounted for?

Subsequent sections of this study are confined to a comparison in domestic dollars. Any attempt to compare industry, regional and occupational data – which is the subject of following sections – in terms of domestic dollars, converted dollars (converting U.S. dollars to Canadian), and constant dollars (allowing for consumer price changes) would become too cumbersome. However, most of the comparisons in this section are shown these three ways. Table II-3 traces the rate of exchange of Canadian and U.S. dollars in annual terms from 1950 to 1967 (from July 1946 to September 1949 the two currencies were officially at par), which is the basis used here for conversion of U.S. dollars to Canadian. Table II-4 contains annual averages of the Canadian and U.S. consumer price indexes from 1947 to 1967 which are used for converting the respective figures into constant dollars in terms of 1949 prices.

The approach in this section, as in the entire study, is to move from the general to the particular. Thus, Section I compares total national income and its components; this section begins with an analysis of average annual labour income, that is, total wages and salaries combined (excluding supplementary labour income – fringe benefits, that is), averaged for all paid workers (self-employed and unemployed are excluded) for all industry (including agriculture), and then for the all-manufacturing sector of the economy. Beginning with Table II-7, attention is centred on wages only, excluding salaries, and hourly wages at that, so that Canada-U.S. differences in weekly hours paid for will not confuse the comparison. Separate comparisons are made for all manufacturing, its durable and nondurable goods components, metal mining and construction.

The Findings

Over the past 21 years U.S. labour income per paid worker (for all industries including agriculture) has averaged out at a little more than one quarter higher than its Canadian counterpart, in terms of domestic dollars, as shown in Table II-1. The comparison has fluctuated most in terms of Canadian dollars, which is to be expected in view of the changing foreign exchange rate (Table II-3), ranging from a premium of about 9 cents on the U.S. dollar in 1950 to a discount of about 4 cents in 1957 and 1959 and a current U.S. premium of 7 to 8 cents.

In domestic dollar terms, the U.S.-Canada differential, henceforth to be called "the differential,"^{1/} narrowed from 40.0 per cent in 1947 to 26.2 per cent in 1967 although it had been as low as 23.9 per cent in 1954. The differential narrowed between 1947 and 1967 because average annual labour income increased more in Canada, 158.0 per cent, than the U.S. average at 132.8 per cent. But this difference is accounted for by the faster increase in the early postwar years; between 1947 and 1949 the Canadian average increased 18.6 per cent, compared with a U.S. increase of only 7.3 per cent; since then the Canadian growth has in effect matched the U.S. rate, 117.5 per cent compared with 117.0 (see Table II-5). However, Canadian average labour income did increase more rapidly between 1961 and 1967, 31.7 per cent, compared with 28.7 per cent in the United States.

Of greater significance is the trend in constant dollars. It can be seen from Table II-1 that while the domestic dollar differential remained virtually constant between 1949 and 1967, the differential in constant dollar terms widened by almost 8 points (from 26.6 to 34.3) because of the more rapid increase in Canadian consumer prices. Whereas consumer prices in the United States in 1967 were some 40.1 per cent higher than in 1949, in Canada they were 49.0 per cent higher (see Table II-4).

Since 1947, while the nominal (domestic dollar) differential narrowed by almost 14 percentage points, from 40.0 to 26.2, the real (constant dollar) differential widened 8 points, from 26.7 in 1947 to 34.3 in 1967. In "purchasing power" terms the Canadian worker compared less favourably with his U.S. neighbour in 1967 than he did 20 years earlier.^{2/} However, to the extent that a dollar (Canadian) for dollar (U.S.) comparison is important, the Canadian worker saw some closing of the gap.

However, no long-term trend is discernible. While the domestic dollar differential (or gap as it will sometimes be called, for variety) was 34.5 per cent lower in 1967 than in 1947, out of the 20 year-to-year changes 13 were downward, six moved up, and there was one instance of no change; as we have seen, the decreases were greater on balance than the increases. The only trend has been a narrowing of the gap for the first 10 years followed by no net change in the next 10.^{3/} When fluctuations in the foreign exchange rate are taken into account (the Canadian dollar comparison), there are the greatest year-to-year changes, ranging from a high of 40.0 per cent in 1947 to a low of 20.6 per cent in 1954.

^{1/} In this section and its tables the differential is shown as the per cent by which the U.S. figure exceeds the Canadian. In Section III the differential is expressed as the ratio of the U.S. figure to the Canadian. However, the differentials in Table II-1, for example, become ratios merely by adding 100 to each of them.

^{2/} Furthermore, the gap in gross national product per capita and per worker has been widening, in constant dollar terms. This is discussed in Section I; see Table I-3.

^{3/} The period from 1947 to 1967 encompasses 21 full years but year-to-year comparisons are 20 in number because each comparison involves 2 successive years with the initial year, 1947, being the starting point.

There was a smaller range in the constant dollar differential (a high of 34.8, a low of 26.6) and 10 year-to-year increases and 10 decreases. There has been a trend towards a wider real labour income differential because consumer prices have increased more in Canada than in the United States. Between 1947 and 1967 consumer prices rose 75.7 per cent in Canada, which was 52.9 per cent more than the 49.5 per cent increase in the United States. The annual rate of increase in Canada was 3.8 per cent, compared with a U.S. rate of 2.5 per cent. On the basis of other periods as well, the greater rate of Canadian price increase is manifest: from 1949 to 1967, a Canadian increase of 49.0 per cent, some 22.2 per cent greater than the U.S. rate of 40.1 (see Table II-4); from 1961 (the beginning of the recent economic "boom" in both countries) to 1967, a Canadian increase of 15.3 per cent, or 31.9 per cent more than the U.S. rate of 11.6 per cent.^{4/}

The fact that a comparison of all paid workers in all industry shows no apparent trend (except for a gradual widening of the real income gap) should not obscure apparent trends at smaller levels of aggregation. A narrowing of the differential is apparent in manufacturing, as shown in Table II-2. In constant dollar terms, the reduction in the gap is not very great, but the narrowing is more apparent when average hourly earnings, rather than average annual wages and salaries per worker, are used as the basis of comparison, as in Tables II-7 to II-9 for all manufacturing, durable goods and nondurable goods manufacturing respectively. The differential has narrowed considerably in the construction industry, depicted in Table II-11, but much less in metal mining, at least in constant dollars, shown in Table II-10.

From an examination of Table II-2 it can be seen that for all manufacturing from 1947 to 1965^{5/} the domestic dollar gap declined 45.2 per cent, in Canadian dollar terms 25.8 per cent, and in constant domestic dollars, 7.5 per cent. In domestic dollars, more than half of the 18-year decline of 23 percentage points occurred in the first 4 years, between 1947 and 1951 (the first 4 years because changes from year to year must be measured from the end of each year), reflecting the much greater increase of manufacturing labour income in Canada in the early postwar years. From 1947 to 1951 the Canadian increase was 41.2 per cent compared with 29.1 per cent in the United States. Part of the change in the differential in recent years may be statistical rather than real. This is discussed in detail in an appendix to this section.

^{4/} It is assumed here that the basis of measuring consumer price changes is sufficiently similar in both countries that a comparison of consumer price indexes is a valid procedure. Needless to say, the indexes do not measure price changes for exactly the same goods and services because consumer expenditures follow a different pattern in each country. (See Comparative Urban Consumer Price Levels in the United States and Canada - an interim study by Herbert Segal and Frances Pratt of the Prices Division, D.B.S., 1967.) However, there is a need for further investigation of the suitability of various price indexes and deflators in Canada and the United States for purposes of real income comparisons, especially when such comparisons are now made so frequently.

^{5/} It has not been possible to obtain 1966 or 1967 labour income data for Canadian manufacturing, so the comparison ends at 1965.

Table II-6 shows that of the 18 year-to-year increases in all manufacturing between 1947 and 1966, 12 were greater in Canada than in the United States. From the base year of 1949 (Table II-5) income by 1965, had increased 125.1 per cent in Canada, compared with a U.S. rise of 106.6 per cent, and from 1947 the Canadian increase was 170.3 per cent compared with 128.8 per cent in the United States. In fact, the more rapid increase of manufacturing wages and salaries in this country, compared with all industry, exceeded the rise in consumer prices; therefore, the real income gap in manufacturing has narrowed, in contrast with the all-industry gap.

Our attention is concentrated on the manufacturing industries in this study. In part, this is because it is in some of these industries that the demand for wage parity has had its strongest expression; also because of the importance of manufacturing in our export and import trade. But we have another reason as well, which has been demonstrated in the foregoing analysis; it is the greater increase of labour income in these industries, vis-à-vis the United States, compared with the economy as a whole.

It would be tempting to surmise that the improvement of Canadian manufacturing labour income relative to that in the United States is a result of a "maturing" of our manufacturing industries. Perhaps the growth of our own domestic markets, the increased volume of manufactured goods we export and the creation of a large investment in new and enlarged production facilities during the war have introduced efficiencies - at least compared with pre-war conditions - that have made possible, or even directly caused, the rapid growth of labour income in this sector. However, it is not the purpose of this study to examine all the factors necessary to test this hypothesis.

Thus far, we have seen what has been happening to the Canada-U.S. differential for all workers, in terms of annual wages and salaries combined, and for workers in the all-manufacturing sector of each economy. The analysis has moved from averages of annual labour income to annual averages of hourly earnings for wage earners only. A word of explanation is now in order.

The Dominion Bureau of Statistics compiles data for certain industries on average weekly wages and salaries.^{6/} The United States Bureau of Labour Statistics does not produce statistics on a regular basis in which wages and salaries are combined; in fact, most B.L.S. data are for wages only. Therefore, a comparison of labour earnings in terms of wages and salaries combined has not been possible, aside from those of annual earnings of wage and salary earners in all industries and in manufacturing as a whole.

Data on hourly and weekly wages (not including salaries) are published in Canada only for mining, manufacturing, construction, and a few industries at a finer level of aggregation.^{7/} B.L.S. data for the

^{6/} These industries are: forestry, mining, manufacturing, construction transportation-storage-communication, public utilities, trade, finance, and service.

^{7/} The description in this and the preceding paragraph of the Canadian industry breakdown refers only to what is available for the major industry groups, that is, at the one-digit level. Finer breakdowns at the two and three-digit levels are also produced.

United States are published for mining, construction,^{8/} manufacturing, trade, finance-insurance-real estate, and services. Obviously it is possible to make comparisons only where data are available for the same industry in both countries. For reasons already given, we have emphasized manufacturing --- and Section III is concerned exclusively with manufacturing industries --- but we have also selected metal mining and construction because comparable data are available for these industries.

As explained above, comparison of weekly wages and salaries has been possible only at the highest level of aggregation. While Section III tables contain data and comparisons in terms of weekly wages, the emphasis is on hourly earnings because part of the Canada-U.S. difference in weekly wages is caused at any time by differences in weekly hours paid for, which of course is not so with hourly earnings.^{9/}

This section concludes with a brief look at the trend from 1947 to 1967 in the average hourly earnings gap shown in Tables II-8 to II-11, inclusive. The greatest narrowing of the gap in domestic dollars took place in nondurable goods manufacturing (71.5 per cent), followed by metal mining (69.7 per cent), and durable goods manufacturing (64.2 per cent). It has not been possible to carry the analysis of construction wages (Table II-11) beyond 1965; from 1947 to 1965 the gap narrowed 36.9 per cent, compared with, for the same period, a reduction of 53.2 per cent in durable goods, 59.7 per cent in nondurable goods, and 28.7 per cent in metal mining. The differential for construction, although it narrowed considerably, was relatively greater (compared with the other industries) in 1965 than in 1947; while it was 86.2 per cent greater than a simple average of the other three differentials in 1947, it was 135.9 per cent greater in 1965.

It would be dangerous to draw any conclusions from a comparison of these four industry groups without knowing something about the many groups necessarily left out. And this knowledge we do not have. All that can be said is that whatever the reasons may be for a greater gap in construction than in the other industries, apparently they still apply, or others have taken over; on the other hand, wages in the other industries have tended to fall into a more uniform pattern in the one country vis-à-vis the other.

However, information at this level of aggregation, while showing certain uniformities of pattern, covers a great deal of internal variation. This is certainly true in manufacturing, which is examined in some detail in Section III.

^{8/} In the United States it is called contract construction but is essentially the same as what in Canada is called construction.

^{9/} Except to the extent that the hourly figure is affected by inclusion of overtime pay. This is discussed further in Section III.

Section II - Appendix

Effect of Revised Canadian Statistical Concepts and Classifications on the Differential

In Table II-2, footnotes 6 and 7, it is pointed out that part of the lower U.S.-Canada differential of recent years is attributable to changes in Canadian statistical concepts and classifications. The change in the Standard Industrial Classification appears to have slightly raised average annual labour income for manufacturing; for example, the figure for 1957 under the old classification was \$3,546, \$17.00 less than the \$3,563 under the new classification, that appears in Table II-2. For the three years, 1957 to 1959 when data were available on the basis of both the old and new classifications, average annual labour income averaged \$3,720 under the old classification and \$3,736 under the new; the latter was \$16.00 or 0.4 per cent higher.

Another important change is the introduction of data based on the concept of the "total activity" of the establishment, which became available for the first time in 1961, replacing labour income data based on manufacturing activity only. However, data based on the old and new concepts were published for 1961 only; average annual labour income, on the old basis, was \$4,136 for 1961, and \$4,215 on the new basis, the latter being \$79.00 or 1.9 per cent greater than the former. (See also footnote 7, Table II-2).

The full difference accounted for by the two changes was 2.3 per cent, when we add the 0.4 per cent calculated for the years 1957 to 1959 and the 1.9 per cent calculated for 1961. We have no way of knowing whether the difference would be more or less than or exactly 2.3 per cent in any given year, so we assume that for recent years the difference would be that much. Given such an assumption, average annual labour income in 1965 would, under the old statistical classification and the manufacturing activity concept, be \$4,870 rather than \$4,982, as shown in the table. The U.S.-Canada differential, instead of being 28.2 per cent, would be 31.2 per cent; the differential, on the basis of the new measures, would be three percentage points, or 9.6 per cent less than under the old measures. Of course, this assumes that the differences found in 1957-1959 and in 1961 can be added together and applied to 1965. This point must be stressed.

Carrying this reasoning to its conclusion, one might compare the differential in 1956, the last year in which statistics were exclusively on the old basis, with the differential shown in the table for 1965, which is based on the revised Canadian measures, and then compare the 1956 figure with the differential as it is assumed it would be on the old basis. The 1956 differential was 35.7 per cent, and the 1965 differential was 28.2 per cent on the new basis and is estimated to be 31.2 per cent on the old basis. The 28.2 per cent differential represents a decline of 21.0 per cent since 1956, while the 31.2 per cent figure represents a decline of 12.6 per cent; in absolute terms the reduction from 1965 is 7.5 percentage points and 4.5 percentage points, the latter representing what the difference would have been (given the assumptions stated above), had no changes in the Canadian statistical measures been introduced. A 12.6 per cent reduction in the differential is 40.0 per cent less than the reduction between 1956 and 1965, based on the figures shown in the table.

It would appear that an important part of the reduced differential may be illusory, resulting from changed statistical concepts and classifications, rather than from "real" changes. Of course, the difference between data based on the old and new measures is less pronounced the farther back we go. Comparing our 1965 differential of 28.2 per cent and the estimated differential of 31.2 per cent with the 1947 figure of 51.5 per cent, we have reductions of 45.2 per cent and 39.4 per cent respectively. The latter figure is only 12.8 per cent less than the former, compared with a difference of 40.0 per cent in our 1956-1965 comparison.

Therefore, it must be borne in mind that a significant part of the recent reduction in the U.S.-Canada average labour income differential is statistical rather than "real", reflecting changes in the Canadian Standard Industrial Classification and in the "total activity" concept that have caused Canadian labour earnings data to be higher than they would have been had the statistical revisions not been introduced. On the other hand, it does not alter the fact that there has been a trend since 1950 showing a decline in the differential in domestic dollar terms.

The nature of these changes in classification and concept is described in various D.B.S. publications, including the "Explanatory Notes" and "Concepts and Definitions" found in the 1962 and 1963 industry reports as well as the Standard Industrial Classification Manual (Catalogue No. 12-501) and Volume I of the historical series (January 1961 to May 1965) containing data on employment, weekly wages and salaries, weekly wages, etc. (Catalogue No. 72-504).

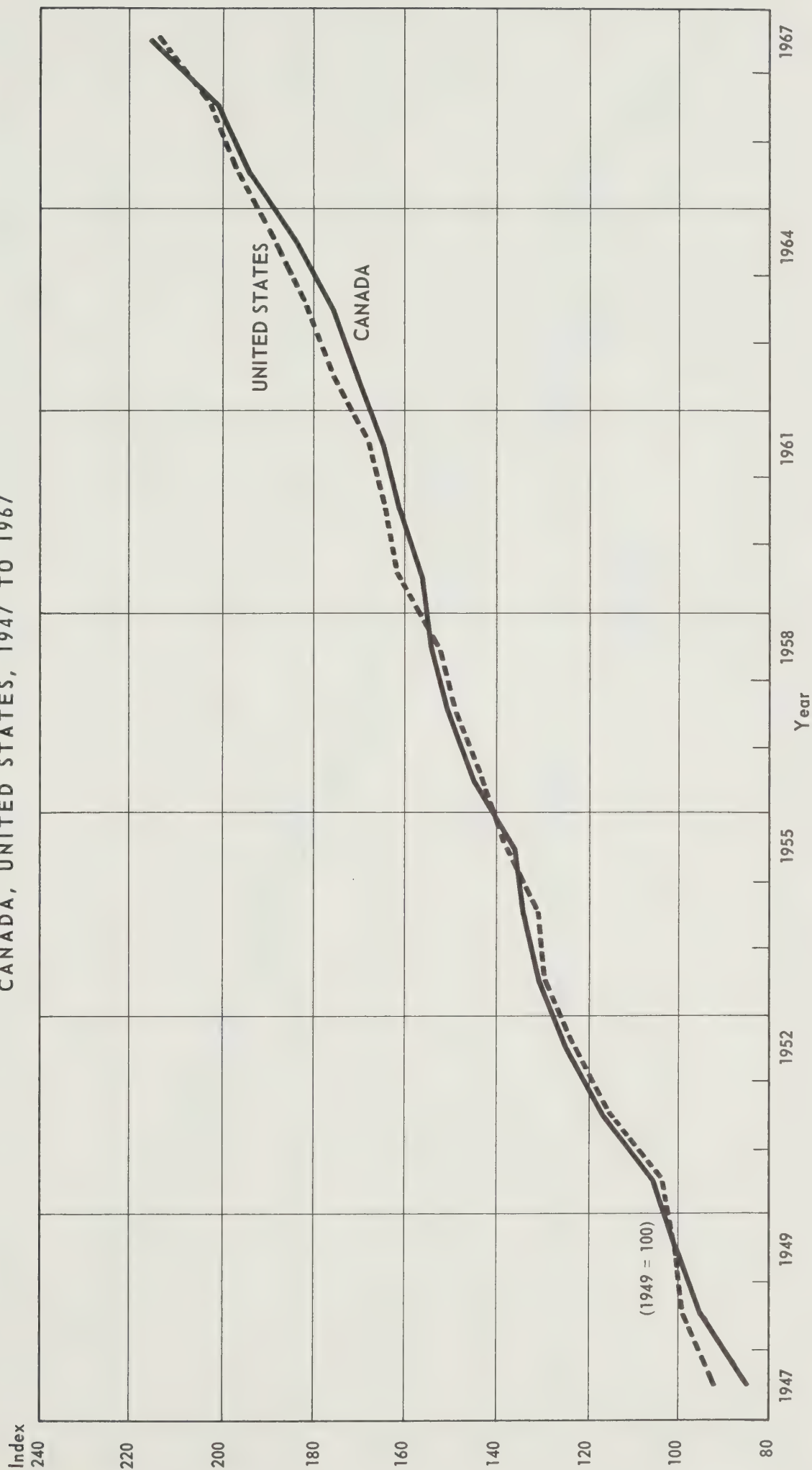
The changes described here are in terms of their effect on data on average annual labour income, that is, wages and salaries combined. However, they certainly affect data in tables other than II-2. The first change, that of the Standard Industrial Classification, meant recoding many establishments (in other words, classifying them as belonging to a different industry than that to which they had previously been assigned). Since most of the recoding of manufacturing establishments meant shifting them from one manufacturing industry to another, the operation had little effect on aggregate data for all manufacturing (only 0.4 per cent as described above) because not very many establishments were moved into or out of manufacturing as such. This quite small effect was on data on wages and salaries combined. A comparison of data on average hourly earnings (i.e., wages) for all manufacturing and for durable goods and the nondurable goods divisions of manufacturing on the basis of the old and new classifications for the years 1961 to 1965 inclusive (when data were available on both bases) reveals virtually no difference. This is not only because few hourly-rates workers were in establishments shifted into or out of manufacturing, hence affecting all-manufacturing data, but also because the other important statistical change mentioned above, the introduction of the total activity concept, which did cause a noticeable change in wages and salaries data combined, had no noticeable effect on wages alone because this concept concerns activities involving salaried employees only.

There is, therefore, no significant break in the continuity of the wages data in Tables II-7 to II-9 (all manufacturing, durable goods manufacturing, nondurable goods manufacturing respectively) because of changes in the classifications or concepts in the Canadian data. This is also the case with Table II-10, covering metal mining, but is not so with the construction industry (Table II-11). In that

industry, there was a substantial transfer of relatively low paid employees out of construction, to be classified in another industry, thus raising the average of wages in the industry on the basis of the new classification. Data have been available on both bases from 1961 to 1965, so figures are shown for construction up to 1965, on the old basis which means there is continuity in the data from 1947 to 1965. Because data for 1966 and later years are available only on the new basis and because of the break in the continuity of the series for construction on the old and new basis, nothing is shown for that industry since 1965. Because there is no break in the series on the old or new basis in the other industries mentioned, the data are carried through to 1967. Finally, -- and this is important -- because there has been a substantial shifting of establishments among manufacturing industries, the problem of establishing continuity between the old and new series for some of the individual manufacturing industry groups covered in Section III has been indeed formidable. It has not been possible to carry the data for some industries beyond 1965, the last year for which they were available on the old basis. In some cases, even the industry names are different under the new classification, as well as the makeup of the component establishments within each industry.

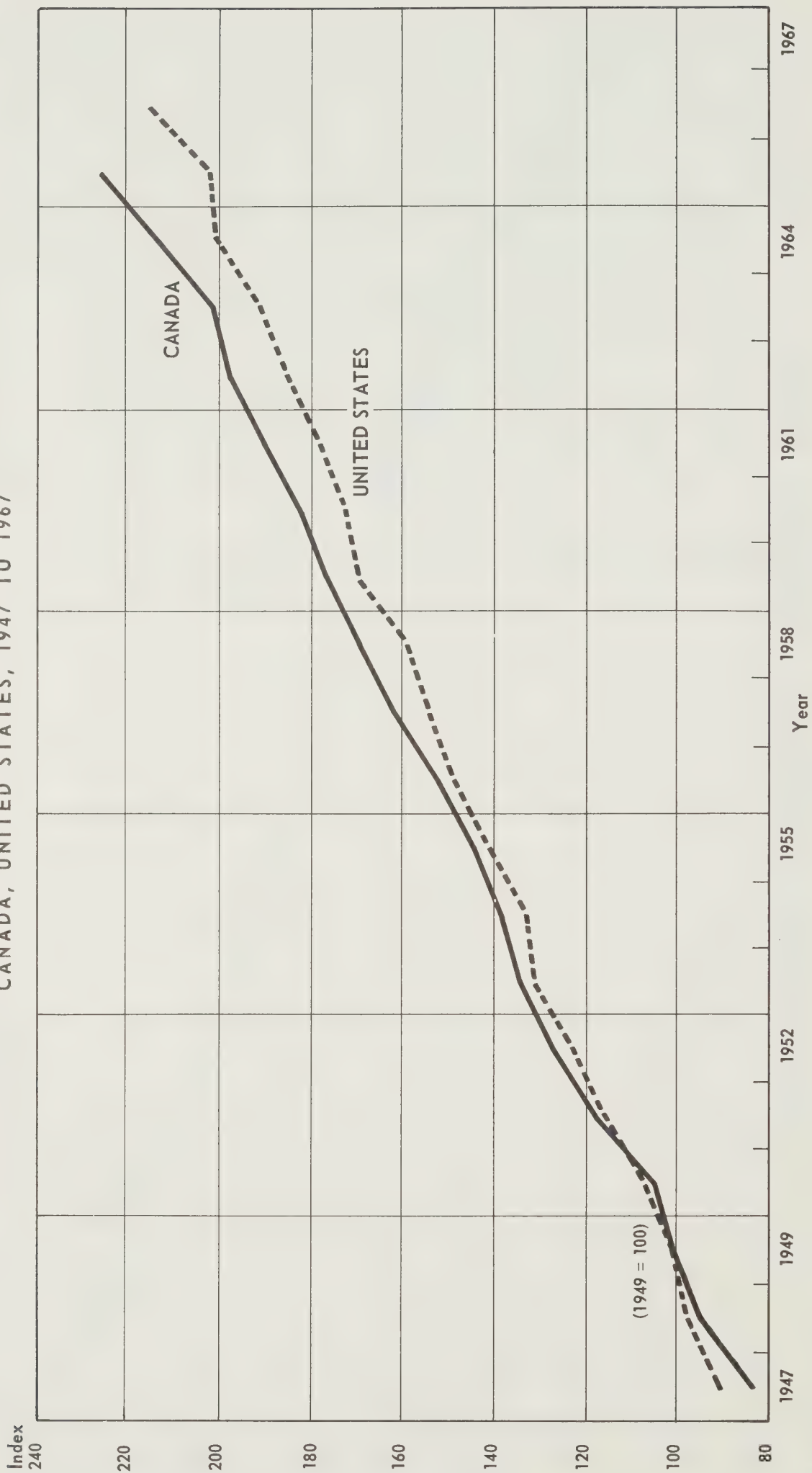
No large-scale changes in the U.S. statistical classifications or concepts have been made that would prevent our producing continuous series for the years covered.

Chart II-1
INDEXES OF AVERAGE ANNUAL LABOUR INCOME, ALL INDUSTRY
CANADA, UNITED STATES, 1947 TO 1967



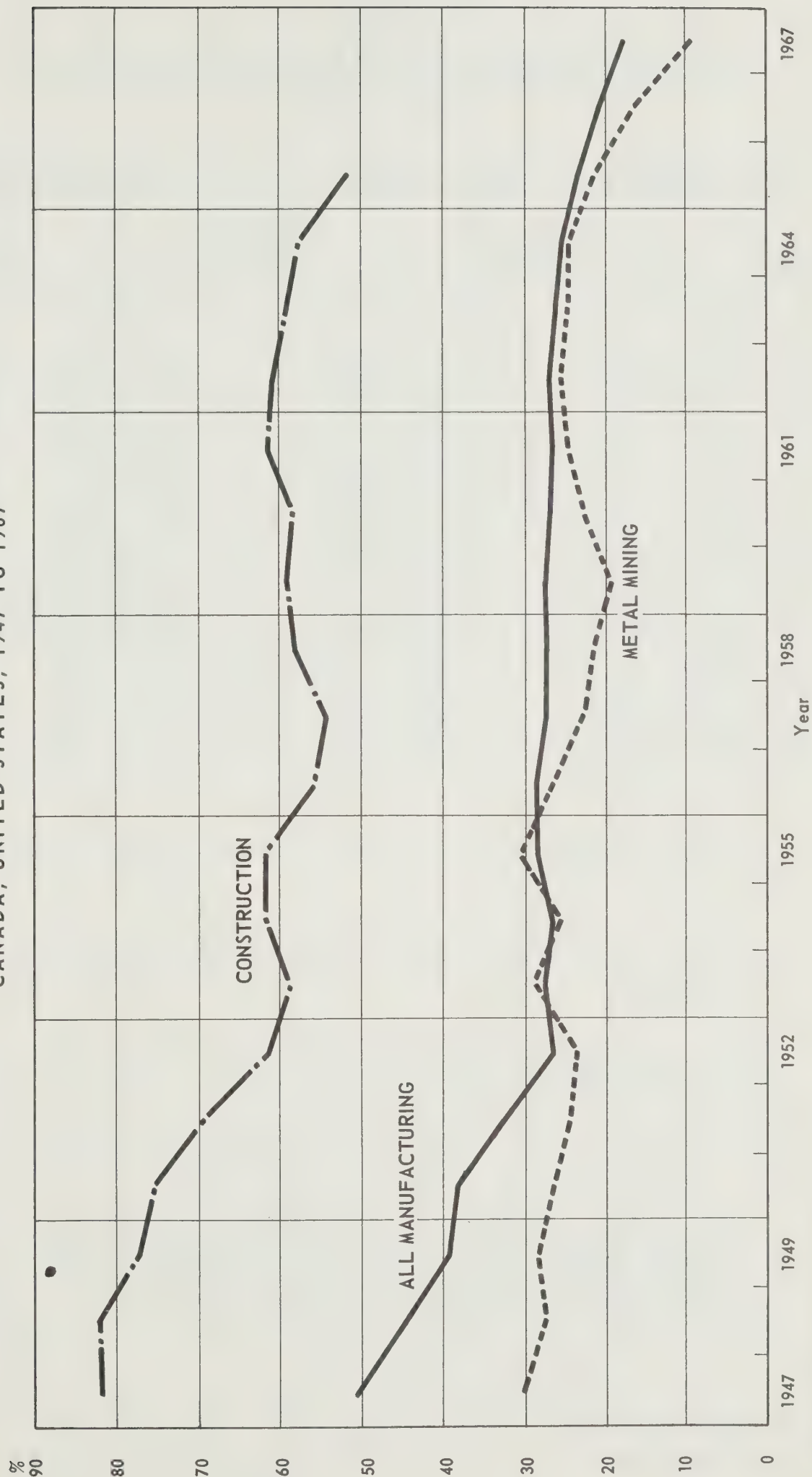
Source: Table II-5.

Chart II-2
INDEXES OF AVERAGE ANNUAL LABOUR INCOME, ALL MANUFACTURING
CANADA, UNITED STATES, 1947 TO 1967



Source: Table II-5.

Chart II-3
DIFFERENTIALS OF AVERAGE HOURLY EARNINGS, ALL MANUFACTURING, METAL MINING, CONSTRUCTION
CANADA, UNITED STATES, 1947 TO 1967



Source: Tables II-7, II-10 and II-11.

Table II-1

Average Annual Labour Income,^{1/} Canada-United States,
in Domestic Dollars, Canadian Dollars,^{2/} Constant Domestic Dollars,
1947 to 1967

Year	Domestic Dollars			Canadian Dollars ^{3/}			Constant (1949) Domestic Dollars ^{4/}		
	Canada	U.S.	U.S. - Canada Differen- tial ^{5/}	Canada	U.S.	U.S. - Canada Differen- tial ^{5/}	Canada	U.S.	U.S. - Canada Differen- tial ^{5/}
	\$	\$	%	\$	\$	%	\$	\$	%
1947	1,889	2,644	40.0	1,889	2,644	40.0	2,228	2,822	26.7
1948	2,127	2,819	32.5	2,127	2,819	32.5	2,193	2,791	27.3
1949	2,241	2,836	26.6	2,241	2,836	26.6	2,241	2,836	26.6
1950	2,358	2,971	26.0	2,358	3,236	37.2	2,292	2,942	28.4
1951	2,613	3,292	26.0	2,613	3,466	32.6	2,298	3,020	31.4
1952	2,790	3,498	25.4	2,790	3,424	22.7	2,395	3,140	31.1
1953	2,947	3,692	25.3	2,947	3,631	23.2	2,552	3,288	28.8
1954	3,019	3,740	23.9	3,019	3,640	20.6	2,598	3,316	27.6
1955	3,069	3,893	26.8	3,069	3,840	25.1	2,637	3,464	31.4
1956	3,252	4,072	25.2	3,252	4,007	23.2	2,754	3,569	29.6
1957	3,378	4,260	26.1	3,378	4,084	20.9	2,771	3,607	30.2
1958	3,464	4,342	25.3	3,464	4,214	21.7	2,769	3,580	29.3
1959	3,530	4,553	29.0	3,530	4,366	23.7	2,791	3,723	33.4
1960	3,603	4,673	29.7	3,603	4,531	25.8	2,815	3,762	33.6
1961	3,701	4,782	29.2	3,701	4,845	30.9	2,865	3,810	33.0
1962	3,810	4,968	30.4	3,810	5,310	39.4	2,915	3,912	34.2
1963	3,945	5,109	29.5	3,945	5,510	39.7	2,966	3,973	34.0
1964	4,118	5,338	29.6	4,118	5,758	39.8	3,041	4,100	34.8
1965	4,351	5,569	28.0	4,351	6,003	38.0	3,137	4,206	34.1
1966	4,614	5,886	27.6	4,614	6,341	37.4	3,206	4,318	34.7
1967	4,875	6,154	26.2	4,875	6,638	36.2	3,272	4,393	34.3

^{1/} Average annual wages and salaries (excluding supplementary labour income) per paid worker, all industry.

^{2/} U.S. earnings are converted to the Canadian dollar equivalent.

^{3/} From 1947 to 1949, inclusive, the U.S. and Canadian dollars were at par: hence no difference between columns for domestic and for Canadian dollars for these years.

^{4/} Earnings, in Canadian and U.S. dollars respectively, are adjusted for changes in the appropriate consumer price index (Canadian or U.S.) with 1949 as the base period.

^{5/} Percentage by which the U.S. figure exceeds the Canadian.

Sources: For Canada, D.B.S., Estimates of Labour Income (Cat. No. 72-005) and The Labour Force (Cat. No. 71-001).

For United States, Bureau of the Census, Report on the Labor Force, Bureau of Labor Statistics, Employment and Earnings and Monthly Report on the Labor Force, and United States Department of Commerce, Survey of Current Business and Supplements.

Table II-2

Average Annual Labour Income,^{1/} Manufacturing, Canada-United States,
in Domestic Dollars, Canadian Dollars,^{2/} Current Domestic Dollars,
1947 to 1966

Year	Domestic Dollars			Canadian Dollars ^{2/}			Constant (1949) Domestic Dollars ^{4/}		
	Canada	U.S.	U.S. - Canada Differen- tial ^{5/}	Canada	U.S.	U.S. - Canada Differen- tial ^{5/}	Canada	U.S.	U.S. - Canada Differen- tial ^{5/}
	\$	\$	%	\$	\$	%	\$	\$	%
1947	1,843	2,793	51.5	1,843	2,793	51.5	2,173	2,981	37.2
1948	2,085	3,040	45.8	2,085	3,040	45.8	2,149	3,010	40.1
1949	2,213	3,092	39.7	2,213	3,092	39.7	2,213	3,092	39.7
1950	2,342	3,300	40.9	2,342	3,594	53.5	2,276	3,267	43.5
1951	2,604	3,606	38.5	2,604	3,796	45.8	2,290	3,308	44.5
1952	2,823	3,828	35.6	2,823	3,747	32.7	2,423	3,436	41.8
1953	2,981	4,049	35.8	2,981	3,982	33.6	2,581	3,606	39.7
1954	3,073	4,116	33.9	3,073	4,006	30.4	2,645	3,649	38.0
1955	3,190	4,351	36.4	3,190	4,291	34.5	2,741	3,871	41.2
1956	3,378	4,584	35.7	3,378	4,511	33.5	2,861	4,018	40.4
1957 ^{6/}	3,563	4,781	34.2	3,563	4,584	28.7	2,923	4,048	38.5
1958 ^{6/}	3,739	4,939	32.1	3,739	4,794	28.2	2,989	4,072	36.2
1959 ^{6/}	3,906	5,215	33.5	3,906	5,001	28.0	3,088	4,264	38.1
1960	4,038	5,342	32.3	4,038	5,180	28.3	3,155	4,301	36.3
1961 ^{7/}	4,215	5,509	30.7	4,215	5,582	32.4	3,262	4,390	34.6
1962	4,387	5,730	30.6	4,387	6,125	39.6	3,357	4,512	34.4
1963	4,557	5,920	29.9	4,557	6,385	40.1	3,426	4,603	34.4
1964	4,748	6,196	30.5	4,748	6,683	40.8	3,507	4,759	35.7
1965	4,982	6,389	28.2	4,982	6,887	38.2	3,592	4,826	34.4
1966		6,647	-	-	7,161	-	-	4,877	-

^{1/} Average annual wages and salaries per paid worker, all manufacturing.

^{2/} See footnote 2, Table II-1.

^{3/} See footnote 3, Table II-1.

^{4/} See footnote 4, Table II-1.

^{5/} See footnote 5, Table II-1.

^{6/} The Canadian data for manufacturing beginning in 1957 are based on a revised classification that has raised average earnings slightly. Data on the old basis are also available for 1957 to 1959; on the old basis the U.S./Canada ratio would have averaged 133.8, whereas the ratio shown above for those years on the new basis averages 133.3, half of one point, or .4 per cent less. See also appendix to Section II.

^{7/} The Canadian data for manufacturing were further revised, beginning in 1961, now being published on the basis of a "total activity" concept, which brings in some more employees and raises average earnings per worker. Data previously used are available based on the new total activity and on the manufacturing activity concept for 1961 only; on the basis of the manufacturing concept the U.S./Canada ratio for that year would be 133.2 as compared with 130.7, based on total activity. The new concept had the effect of reducing the differential 2.5 points, or 1.9 per cent. See also appendix to Section II.

Sources: For Canada, D.B.S., General Review of the Manufacturing Industries (Cat. No. 31-201).
For United States, U.S. Department of Commerce, Survey of Current Business and Supplements.

Table II-3

Foreign Exchange Rate: Canadian Dollars
per United States Dollars,
1950 to 1967

1950	108.92
1951	105.28
1952	97.89
1953	98.34
1954	97.32
1955	98.63
1956	98.41
1957	95.88
1958	97.06
1959	95.90
1960	96.97
1961	101.32
1962	106.89
1963	107.85
1964	107.86
1965	107.80
1966	107.73
1967	107.87

Note: The rate of exchange between the Canadian and United States dollar has been quoted, since 1950, in terms of spot rates (high, low and close for the month or year), average noon spot rates, and 90-day forward rates. The annual average of spot rates at noon of each business day has been selected for purposes of this study.

From 1934 to the outbreak of war in 1939 the Canadian and United States dollars were usually within one cent of parity although the Canadian dollar in New York did go as high as 103.6 cents in September 1934 and as low as 98.0 cents in September 1938. In September 1939, the U.S. dollar was set under foreign exchange control, at \$1.10 to \$1.11, Canadian. In July 1946 the dollars were brought into parity in official rates, which continued until September 1949 when the former official rate of \$1.10½ Canadian, per U.S. dollar, was restored. On September 30, 1950, exchange control was withdrawn and the rate was determined by the foreign exchange market. This continued until May 2, 1962, when the Canadian dollar was stabilized at 92½ cents, U.S. currency, which rate has been continued to the present time.

Sources: Bank of Canada, Statistical Summary.
Canada Year Book, 1963-64, pages 1061-63.

Table II-4

Consumer Price Indexes, Canada-United States,
1947 to 1967

Year	Canada	United States	
	1949 = 100	1957-59 = 100	1949 = 100
1947	84.8	77.8	93.7
1948	97.0	83.8	101.0
1949	100.0	83.0	100.0
1950	102.9	83.8	101.0
1951	113.7	90.5	109.0
1952	116.5	92.5	111.4
1953	115.5	93.2	112.3
1954	116.2	93.6	112.8
1955	116.4	93.3	112.4
1956	118.1	94.7	114.1
1957	121.9	98.0	118.1
1958	125.1	100.7	121.3
1959	126.5	101.5	122.3
1960	128.0	103.1	124.2
1961	129.2	104.2	125.5
1962	130.7	105.4	127.0
1963	133.0	106.7	128.6
1964	135.4	108.1	130.2
1965	138.7	109.9	132.4
1966	143.9	113.1	136.3
1967	149.0	116.3	140.1

Note: The Canadian index has been published as shown above, on a 1949 base year. The U.S. index has been published with average prices for 1957 to 1959 inclusive as the base as shown above. This has been converted to a 1949 base for comparability with Canada.

Sources: For Canada, D.B.S., Prices and Price Indexes (Cat. No. 62-002).
For United States, Annual Statistical Abstract.

Table II-5

Indexes^{1/} of Average Annual Labour Income,
Canada-United States,
1947 to 1967

Year	All Industry		All Manufacturing	
	Canada	United States	Canada	United States
1947	84.3	93.2	83.3	90.3
1948	94.9	99.4	94.2	98.3
1949	100.0	100.0	100.0	100.0
1950	105.2	104.8	105.8	106.7
1951	116.6	116.1	117.7	116.6
1952	124.5	123.3	127.6	123.8
1953	131.5	130.2	134.7	131.0
1954	134.7	131.9	138.9	133.1
1955	136.9	137.3	144.1	140.7
1956	145.1	143.6	152.6	148.3
1957	150.7	150.2	161.0	154.6
1958	154.6	153.1	169.0	159.7
1959	157.5	160.5	176.5	168.7
1960	160.8	164.8	182.5	172.8
1961	165.1	168.6	190.5	178.2
1962	170.0	175.2	198.2	185.3
1963	176.0	180.1	205.9	191.5
1964	183.8	188.2	214.6	200.4
1965	194.2	196.4	225.1	206.6
1966	205.8	207.5	-	215.0
1967	217.5	217.0	-	-

^{1/}Indexes of average annual wages and salaries per paid worker, in domestic dollars, 1949=100. Based on data in Table II-1 for all industry and in Table II-2 for all manufacturing.

Table II-6

Year-to-Year Percentage Increases in
Average Annual Labour Income, Canada-United States,
1947 to 1967

Year	All Industry		All Manufacturing	
	Canada	United States	Canada	United States
	%	%	%	%
1947-48	12.6	6.6	13.1	8.8
1948-49	5.4	0.6	6.1	1.7
1949-50	5.2	4.8	5.8	6.7
1950-51	10.8	10.8	11.2	9.3
1951-52	6.8	6.3	8.4	6.2
1952-53	5.6	5.5	5.6	5.8
1953-54	2.4	1.3	3.1	1.7
1954-55	1.7	4.1	3.8	5.7
1955-56	6.0	4.6	5.9	5.4
1956-57	3.9	4.6	5.0	4.3
1957-58	2.5	1.9	4.9	3.3
1958-59	1.9	4.9	4.5	5.6
1959-60	2.1	2.6	3.4	2.4
1960-61	2.7	2.3	2.4	3.1
1961-62	2.9	3.9	4.1	4.0
1962-63	3.5	2.8	3.9	3.3
1963-64	4.4	4.5	4.2	4.7
1964-65	5.7	4.3	4.9	3.1
1965-66	6.0	5.7	-	4.0
1966-67	5.7	4.6	-	-

Note: Based on data in Table II-1 and II-2, in domestic dollars.

Table II-7

Average Hourly Earnings in All Manufacturing, Canada-United States,
1947 to 1967

Year	Domestic Dollars			Canadian Dollars ^{1/}			Constant (1949) Domestic Dollars ^{2/}		
	Canada	United States	U.S.- Canada Differ- ential ^{4/}	Canada	United States	U.S.- Canada Differ- ential ^{4/}	Canada ^{3/}	United States	U.S.- Canada Differ- ential ^{4/}
	\$	\$	%	\$	\$	%	\$	\$	%
1947	0.81	1.22	50.6	0.81	1.22	50.6	0.94	1.30	38.3
1948	0.92	1.33	44.6	0.92	1.33	44.6	0.94	1.32	40.4
1949	0.99	1.38	39.4	0.99	1.38	39.4	0.99	1.38	39.4
1950	1.04	1.44	38.5	1.04	1.57	51.0	1.00	1.43	43.0
1951	1.18	1.56	32.2	1.18	1.64	39.0	1.03	1.43	38.8
1952	1.30	1.65	26.9	1.30	1.62	24.6	1.12	1.48	32.1
1953	1.36	1.74	27.9	1.36	1.71	25.7	1.18	1.55	31.4
1954	1.41	1.78	26.2	1.41	1.73	22.7	1.21	1.58	30.6
1955	1.45	1.86	28.3	1.45	1.83	26.2	1.25	1.65	32.0
1956	1.52	1.95	28.3	1.52	1.92	26.3	1.28	1.71	33.6
1957	1.61	2.05	27.3	1.61	1.97	22.4	1.32	1.74	31.8
1958	1.66	2.11	27.1	1.66	2.05	23.5	1.32	1.74	31.8
1959	1.72	2.19	27.3	1.72	2.10	22.1	1.36	1.79	31.6
1960	1.78	2.26	27.0	1.78	2.19	23.0	1.39	1.82	30.9
1961	1.83	2.32	26.8	1.83	2.35	28.4	1.42	1.85	30.3
1962	1.88	2.39	27.1	1.88	2.55	35.6	1.44	1.88	30.6
1963	1.95	2.46	26.2	1.95	2.65	35.9	1.46	1.91	30.8
1964	2.02	2.53	25.2	2.02	2.73	35.1	1.49	1.94	30.2
1965	2.12	2.61	23.1	2.12	2.81	32.5	1.52	1.97	29.6
1966	2.25	2.72	20.9	2.25	2.91	29.3	1.56	2.00	28.2
1967	2.40	2.83	17.9	2.40	3.05	27.1	1.60	2.02	26.3

Note: Data for Canada from 1947 to 1965 are based on the old Standard Industrial Classification (1965 averages were computed in the Department of Labour from D.B.S. ledgers); 1966 and 1967 data are based on the revised Standard Industrial Classification.

^{1/}See footnote 2, Table II-1.

^{2/}See footnote 4, Table II-1.

^{3/}The annual price indexes used in calculating the constant (1949) domestic dollars for Canada have been adjusted to allow for each monthly figure being moved back one month to correspond with the pay period covered for hourly earnings.

^{4/}See footnote 5, Table II-1.

Sources: For Canada, D.B.S., Review of Manhours and Hourly Earnings (Cat. No. 72-202).
For United States, U.S. Department of Labor, Employment and Earnings Statistics for the United States, 1909-67.

Table II-8

Average Hourly Earnings in Durable Goods Manufacturing,^{1/}
Canada-United States,
1947 to 1967

Year	Domestic Dollars			Canadian Dollars ^{2/}			Constant (1949) Domestic Dollars ^{3/}		
	Canada	United States	U.S.- Canada Differ- ential ^{5/}	Canada	United States	U.S.- Canada Differ- ential ^{5/}	Canada ^{4/}	United States	U.S.- Canada Differ- ential ^{5/}
	\$	\$	%	\$	\$	%	\$	\$	%
1947	0.88	1.28	45.5	0.88	1.28	45.5	1.02	1.37	34.3
1948	0.99	1.40	41.4	0.99	1.40	41.4	1.02	1.39	36.3
1949	1.07	1.45	35.5	1.07	1.45	35.5	1.07	1.45	35.5
1950	1.13	1.52	34.5	1.13	1.66	46.9	1.09	1.50	37.6
1951	1.27	1.65	29.9	1.27	1.74	37.0	1.11	1.51	36.0
1952	1.41	1.75	24.1	1.41	1.71	21.3	1.21	1.57	29.8
1953	1.48	1.86	25.7	1.48	1.83	23.6	1.28	1.66	29.7
1954	1.52	1.90	25.0	1.52	1.85	21.7	1.31	1.68	28.2
1955	1.56	1.99	27.6	1.56	1.96	25.6	1.34	1.77	32.1
1956	1.64	2.08	26.8	1.64	2.05	25.0	1.39	1.82	30.9
1957	1.73	2.19	26.6	1.73	2.10	21.4	1.42	1.85	30.3
1958	1.80	2.26	25.6	1.80	2.19	21.7	1.44	1.86	29.2
1959	1.87	2.36	26.2	1.87	2.26	20.9	1.48	1.93	30.4
1960	1.94	2.43	25.3	1.94	2.36	21.6	1.51	1.96	29.8
1961	1.99	2.49	25.1	1.99	2.52	26.6	1.54	1.98	28.6
1962	2.04	2.56	25.5	2.04	2.74	34.3	1.56	2.02	29.5
1963	2.11	2.63	24.6	2.11	2.84	34.6	1.58	2.05	29.7
1964	2.19	2.71	23.7	2.19	2.92	33.3	1.62	2.08	28.4
1965	2.30	2.79	21.3	2.30	3.01	30.9	1.65	2.11	27.9
1966	2.43	2.90	19.3	2.43	3.12	28.4	1.68	2.13	26.8
1967	2.58	3.00	16.3	2.58	3.24	25.6	1.72	2.14	24.4

Note: Data for Canada from 1947 to 1965 are based on the old Standard Industrial Classification (1965 averages were computed in the Department of Labour from D.B.S. ledgers); 1966 and 1967 data are based on the revised Standard Industrial Classification.

^{1/}Durable goods manufacturing in Canada consists of the following industries: wood products, furniture and fixtures, primary metal industries, metal fabricating industries, machinery (except electrical), transportation equipment, electrical products and nonmetallic mineral products. In the United States, some of the industries have a somewhat different title but in all cases can be compared with Canadian industries.

^{2/}See footnote 2, Table II-1.

^{3/}See footnote 4, Table II-1.

^{4/}See footnote 3, Table II-7.

^{5/}See footnote 5, Table II-1.

Sources: For Canada, D.B.S., Review of Manhours and Hourly Earnings (Cat. No. 72-202). For United States, U.S. Department of Labor, Employment and Earnings Statistics for the United States, 1909-67.

Table II-9

Average Hourly Earnings in Nondurable Goods Manufacturing,^{1/}
Canada-United States,
1947 to 1967

Year	Domestic Dollars			Canadian Dollars ^{2/}			Constant (1949) Domestic Dollars ^{3/}		
	Canada	United States	U.S.- Canada Differ- ential ^{5/}	Canada	United States	U.S.- Canada Differ- ential ^{5/}	Canada ^{4/}	United States	U.S.- Canada Differ- ential ^{5/}
	\$	\$	%	\$	\$	%	\$	\$	%
1947	0.74	1.15	55.4	0.74	1.15	55.4	0.86	1.23	43.0
1948	0.85	1.25	47.1	0.85	1.25	47.1	0.87	1.24	42.5
1949	0.91	1.30	42.9	0.91	1.30	42.9	0.91	1.30	42.9
1950	0.96	1.35	40.6	0.96	1.47	53.1	0.93	1.34	44.1
1951	1.08	1.44	33.3	1.08	1.52	40.7	0.94	1.32	40.4
1952	1.18	1.51	28.0	1.18	1.48	25.4	1.02	1.36	33.3
1953	1.23	1.58	28.5	1.23	1.55	26.0	1.06	1.41	33.0
1954	1.30	1.62	24.6	1.30	1.58	21.5	1.12	1.44	28.6
1955	1.33	1.67	25.6	1.33	1.65	24.1	1.14	1.49	30.7
1956	1.39	1.77	27.3	1.39	1.74	25.2	1.17	1.55	32.5
1957	1.47	1.85	25.9	1.47	1.77	20.4	1.20	1.57	30.8
1958	1.53	1.91	24.8	1.53	1.85	20.9	1.22	1.57	28.7
1959	1.58	1.98	25.3	1.58	1.90	20.3	1.25	1.62	29.6
1960	1.64	2.05	25.0	1.64	1.99	21.3	1.28	1.65	28.9
1961	1.68	2.11	25.6	1.68	2.14	27.4	1.30	1.68	29.2
1962	1.73	2.17	25.4	1.73	2.32	34.1	1.32	1.71	29.5
1963	1.79	2.22	24.0	1.79	2.39	33.5	1.34	1.73	29.1
1964	1.85	2.29	23.8	1.85	2.47	33.5	1.36	1.76	29.4
1965	1.93	2.36	22.3	1.93	2.54	31.6	1.39	1.78	28.1
1966	2.06	2.45	18.9	2.06	2.64	28.2	1.43	1.80	25.9
1967	2.22	2.57	15.8	22.2	2.85	28.4	1.48	1.83	23.6

Note: Data for Canada from 1947 to 1965 are based on the old Standard Industrial Classification (1965 averages were computed in the Department of Labour from D.B.S. ledgers); 1966 and 1967 data are based on the revised Standard Industrial Classification.

^{1/} Nondurable goods manufacturing in Canada consists of the following industries: food and beverages, tobacco processing and products, rubber products, leather products, textile products, knitting mills, clothing, paper and allied industries, printing, publishing and allied industries, petroleum and coal products, and chemical and allied products. In the United States, some of the industries have a slightly different title but in all cases can be compared with Canadian industries.

^{2/} See footnote 2, Table II-1.

^{3/} See footnote 4, Table II-1.

^{4/} See footnote 3, Table II-7.

^{5/} See footnote 5, Table II-1.

Sources: For Canada, D.B.S., Review of Manhours and Hourly Earnings (Cat. No. 72-202). For United States, U.S. Department of Labor, Employment and Earnings Statistics for the United States, 1909-67.

Table II-10

Average Hourly Earnings, Metal Mining, Canada-United States,
1947 to 1967

Year	Domestic Dollars			Canadian Dollars ^{1/}			Constant (1949) Domestic Dollars ^{2/}		
	Canada	United States	U.S.- Canada Differ- ential ^{4/}	Canada	United States	U.S.- Canada Differ- ential ^{4/}	Canada ^{3/}	United States	U.S.- Canada Differ- ential ^{4/}
	\$	\$	%	\$	\$	%	\$	\$	%
1947	1.00	1.30	30.0	1.00	1.30	30.0	1.16	1.39	19.8
1948	1.11	1.42	27.9	1.11	1.42	27.9	1.14	1.41	23.7
1949	1.16	1.49	28.4	1.16	1.49	28.4	1.16	1.49	28.4
1950	1.22	1.54	26.2	1.22	1.68	37.7	1.18	1.52	28.8
1951	1.36	1.69	24.3	1.36	1.78	30.9	1.19	1.55	30.3
1952	1.49	1.84	23.5	1.49	1.80	20.8	1.28	1.65	28.9
1953	1.57	2.01	28.0	1.57	1.98	26.1	1.36	1.79	31.6
1954	1.62	2.04	25.9	1.62	1.99	22.8	1.39	1.81	30.2
1955	1.66	2.16	30.1	1.66	2.13	28.3	1.43	1.92	34.3
1956	1.80	2.27	26.1	1.80	2.23	23.9	1.52	1.99	30.9
1957	1.95	2.39	22.6	1.95	2.29	17.4	1.60	2.02	26.3
1958	2.03	2.46	21.2	2.03	2.39	17.7	1.62	2.03	25.3
1959	2.13	2.55	19.7	2.13	2.45	15.0	1.68	2.09	24.4
1960	2.17	2.66	22.6	2.17	2.58	18.9	1.69	2.14	26.6
1961	2.20	2.74	24.5	2.20	2.78	26.4	1.70	2.18	28.2
1962	2.26	2.83	25.2	2.26	3.02	33.6	1.73	2.23	28.9
1963	2.31	2.88	24.7	2.31	3.11	34.6	1.73	2.24	29.5
1964	2.38	2.96	24.4	2.38	3.19	34.0	1.76	2.27	29.0
1965	2.52	3.06	21.4	2.52	3.30	31.0	1.81	2.31	27.6
1966	2.72	3.17	16.5	2.72	3.42	25.7	1.88	2.33	23.9
1967	2.98	3.25	9.1	2.98	3.51	17.8	1.99	2.32	16.6

Note: Data for Canada from 1947 to 1964 are based on the old Standard Industrial Classification, while 1965, 1966 and 1967 data are based on the revised classification.

^{1/}See footnote 2, Table II-1.

^{2/}See footnote 4, Table II-1.

^{3/}See footnote 3, Table II-7.

^{4/}See footnote 5, Table II-1.

Sources: For Canada, D.B.S., Review of Manhours and Hourly Earnings (Cat. No. 72-202). For United States, U.S. Department of Labor, Employment and Earnings Statistics for the United States, 1909-67.

Table II-11
Average Hourly Earnings, Construction, Canada-United States,
1947 to 1965

Year	Domestic Dollars			Canadian Dollars ^{1/}			Constant (1949) Domestic Dollars ^{2/}		
	Canada	United States	U.S.- Canada Differ- ential ^{4/}	Canada	United States	U.S.- Canada Differ- ential ^{4/}	Canada ^{3/}	United States	U.S.- Canada Differ- ential ^{4/}
	\$	\$	%	\$	\$	%	\$	\$	%
1947	0.85	1.54	81.2	0.85	1.54	81.2	0.99	1.64	65.7
1948	0.94	1.71	81.9	0.94	1.71	81.9	0.96	1.69	76.0
1949	1.01	1.79	77.2	1.01	1.79	77.2	1.01	1.79	77.2
1950	1.06	1.86	75.5	1.06	2.03	91.5	1.02	1.84	80.4
1951	1.19	2.02	69.7	1.19	2.13	79.0	1.04	1.85	77.9
1952	1.32	2.13	61.4	1.32	2.09	58.3	1.14	1.91	67.5
1953	1.44	2.28	58.3	1.44	2.24	55.6	1.25	2.03	62.4
1954	1.48	2.39	61.5	1.48	2.33	57.4	1.27	2.12	66.9
1955	1.52	2.45	61.2	1.52	2.42	59.2	1.31	2.18	66.4
1956	1.65	2.57	55.8	1.65	2.53	53.3	1.39	2.25	61.9
1957	1.76	2.71	54.0	1.76	2.60	47.7	1.44	2.29	59.0
1958	1.78	2.82	58.4	1.78	2.74	53.9	1.42	2.32	63.4
1959	1.84	2.93	59.2	1.84	2.81	52.7	1.45	2.40	65.5
1960	1.94	3.08	58.8	1.94	2.99	54.1	1.51	2.48	64.2
1961	1.98	3.20	61.6	1.98	3.24	63.6	1.53	2.55	66.7
1962	2.06	3.31	60.7	2.06	3.54	71.8	1.57	2.61	66.2
1963	2.14	3.41	59.3	2.14	3.68	72.0	1.61	2.65	64.6
1964	2.25	3.55	57.8	2.25	3.83	70.2	1.66	2.73	64.5
1965	2.44	3.69	51.2	2.44	3.98	63.1	1.75	2.79	59.4

Note: Data for Canada are based on the old Standard Industrial Classification. Averages for 1965 were computed in the Department of Labour from D.B.S. ledgers; data for later years are not comparable because of a change in employee coverage.

^{1/}See footnote 2, Table II-1.

^{2/}See footnote 4, Table II-1.

^{3/}See footnote 3, Table II-7.

^{4/}See footnote 5, Table II-1.

Sources: For Canada, D.B.S., Review of Manhours and Hourly Earnings (Cat. No. 72-202). For United States, U.S. Department of Labor, Employment and Earnings Statistics for the United States, 1909-67.

Table II-12

Indexes^{1/} of Average Hourly Earnings, Various Industries,
Canada-United States,
1947 to 1967

In Domestic Dollars

Year	All Manufacturing		Durable Goods		Nondurable Goods		Metal Mining		Construction	
	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.
1947	81.8	88.4	82.2	88.3	81.3	88.5	86.2	87.2	84.2	86.0
1948	92.9	96.4	92.5	96.6	93.4	96.2	95.7	95.3	93.1	95.5
1949	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1950	105.1	104.3	105.6	104.8	105.5	103.8	105.2	103.4	105.0	103.9
1951	119.2	113.0	118.7	113.8	118.7	110.8	117.2	113.4	117.8	112.8
1952	131.3	119.6	131.8	120.7	129.7	116.2	128.4	123.5	130.7	119.0
1953	137.4	126.1	138.3	128.3	135.2	121.5	135.3	134.9	142.6	127.4
1954	142.4	129.0	142.1	131.0	142.9	124.6	139.7	136.9	146.5	133.5
1955	146.5	134.8	145.8	137.2	146.2	128.5	143.1	145.0	150.5	136.9
1956	153.5	141.3	153.3	143.4	152.7	136.2	155.2	152.3	163.4	143.6
1957	162.6	148.6	161.7	151.0	161.5	142.3	168.1	160.4	174.3	151.4
1958	167.7	152.9	168.2	155.9	168.1	146.9	175.0	165.1	176.2	157.5
1959	173.7	158.7	174.8	162.8	173.6	152.3	183.6	171.1	182.2	163.7
1960	179.8	163.8	181.3	167.6	180.2	157.7	187.1	178.5	192.1	172.1
1961	184.8	168.1	186.0	171.7	184.6	162.3	189.7	183.9	196.0	178.8
1962	189.9	173.2	190.7	176.6	190.1	166.9	194.8	189.9	204.0	184.9
1963	197.0	178.3	197.2	181.4	196.7	170.8	199.1	193.3	211.9	190.5
1964	204.0	183.3	204.7	186.9	203.3	176.2	205.2	198.7	222.8	198.3
1965	214.1	189.1	215.0	192.4	212.1	181.5	217.2	205.4	241.6	206.1
1966	227.3	197.1	227.1	200.0	226.4	188.5	234.5	212.8	-	-
1967	242.4	205.1	241.1	206.9	244.0	197.7	256.9	218.1	-	-

In Canadian Dollars^{2/}

1947	81.8	88.4	82.2	88.3	81.3	88.5	86.2	87.2	84.2	86.0
1948	92.9	96.4	92.5	96.6	93.4	96.2	95.7	95.3	93.1	95.5
1949	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1950	105.1	113.8	105.6	114.5	105.5	113.1	105.2	112.8	105.0	113.4
1951	119.2	118.8	118.7	120.0	118.7	116.9	117.2	119.5	117.8	119.0
1952	131.3	117.4	131.8	117.9	129.7	113.8	128.4	120.8	130.7	116.8
1953	137.4	123.9	138.3	126.2	135.2	119.2	135.3	132.9	142.6	125.1
1954	142.4	125.4	142.1	127.6	142.9	121.5	139.7	133.6	146.5	130.2
1955	146.5	132.6	145.8	135.2	146.2	126.9	143.1	142.9	150.5	135.2
1956	153.5	139.1	153.3	141.4	152.7	133.8	155.2	149.7	163.4	141.3
1957	162.6	142.8	161.7	144.8	161.5	136.2	168.1	153.7	174.3	145.3
1958	167.7	148.6	168.2	151.0	168.1	142.3	175.0	160.4	176.2	153.1
1959	173.7	152.2	174.8	155.9	173.6	146.2	183.6	164.4	182.2	156.9
1960	179.8	158.7	181.3	162.8	180.2	153.1	187.1	173.2	192.1	167.0
1961	184.8	170.3	186.0	173.8	184.6	164.6	189.7	186.6	196.0	181.0
1962	189.9	184.8	190.7	189.0	190.1	178.5	194.8	202.7	204.0	197.8
1963	197.0	192.0	197.2	195.9	196.7	183.8	199.1	208.7	211.9	205.6
1964	204.0	197.8	204.7	201.4	203.3	190.0	205.2	214.1	222.8	214.0
1965	214.1	203.6	215.0	207.6	212.1	195.4	217.2	221.5	241.6	222.3
1966	227.3	210.9	227.1	215.2	226.4	203.1	234.5	229.5	-	-
1967	242.4	221.0	241.1	223.4	244.0	219.2	256.9	235.6	-	-

^{1/}Indexes based on 1949=100, derived from data in Tables II-7, II-8, II-9, II-10, and II-11.

^{2/}See footnote 2, Table II-1.

Table II-13

Year-to-Year Percentage Increases in Average Hourly Earnings
in Various Industries, Canada-United States,
1947 to 1967

Year	All Manufacturing		Durable Goods		Nondurable Goods		Metal Mining		Construction	
	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.
	%	%	%	%	%	%	%	%	%	%
1947-48	13.6	9.0	12.5	9.4	14.9	8.7	11.0	9.2	10.6	11.0
1948-49	7.6	3.8	8.0	3.6	7.1	4.0	4.5	4.9	7.4	4.7
1949-50	5.1	4.3	5.6	4.8	5.5	3.8	5.2	3.4	5.0	3.9
1950-51	13.5	8.3	12.4	8.6	12.5	6.7	11.5	9.7	12.3	8.6
1951-52	10.2	5.8	11.0	6.1	9.3	4.9	9.6	8.9	10.9	5.4
1952-53	4.6	5.5	5.0	6.3	4.2	4.6	5.4	9.2	9.1	7.0
1953-54	3.7	2.3	2.7	2.2	5.7	2.5	3.2	1.5	2.8	4.8
1954-55	2.8	4.5	2.6	4.7	2.3	3.1	2.5	5.9	2.7	2.5
1955-56	4.8	4.8	5.1	4.5	4.5	6.0	8.4	5.1	8.6	4.9
1956-57	5.9	5.1	5.5	5.3	5.6	4.5	8.3	5.3	6.7	5.4
1957-58	3.1	2.9	4.0	3.2	4.1	3.2	4.1	2.9	1.1	4.1
1958-59	3.6	3.8	3.9	4.4	3.3	3.7	4.9	3.7	3.4	3.9
1959-60	3.5	3.2	3.7	3.0	3.8	3.5	1.9	4.3	5.4	5.1
1960-61	2.8	2.7	2.6	2.5	2.4	2.9	1.4	3.0	2.1	3.9
1961-62	2.7	3.0	2.5	2.8	3.0	2.8	2.7	3.3	4.0	3.4
1962-63	3.7	2.9	3.4	2.7	3.5	2.3	2.2	1.8	3.9	3.0
1963-64	3.6	2.8	3.8	3.0	3.4	3.2	3.0	2.8	5.1	4.1
1964-65	5.0	3.2	5.0	3.0	4.3	3.1	5.9	3.4	8.4	3.9
1965-66	6.1	4.2	5.7	3.9	6.7	3.8	7.9	3.6	-	-
1966-67	6.7	4.0	6.2	3.4	7.8	4.9	9.6	2.5	-	-

Note: Based on data in Tables II-7 to II-11, inclusive, in domestic dollars.

Section III

A Comparison of Wage Patterns and Behaviour in the Manufacturing Industries

It has already been observed in Section II that since 1947 the Canada - U.S. wages gap has narrowed in manufacturing, taken as a whole. This has been so whether the comparison is in domestic dollars, Canadian dollars on both sides, or constant domestic dollars. (The analysis in this section is entirely in current domestic dollars, that is, not deflated for changes in consumer prices or changes in the foreign exchange rate.) It has also been observed that the gap has narrowed more for nondurable goods manufacturing than for durable goods.

This section analyzes the behaviour of wages in greater detail for the manufacturing industries. The emphasis is on hourly wages, but weekly wages receive some attention. In most of the analysis the terminal year is 1965 rather than 1966 or 1967 because changes in the Canadian Standard Industrial Classification, applicable to the Canadian data for 1966 and later, make the more recent comparison with U.S. data impracticable for some industries (see footnote 3, Table III-9).

Data are examined for 15 groups of manufacturing industries comprising all manufacturing operations in both countries except for a small group known as "miscellaneous manufacturing", accounting for 3 per cent or less of total wage-earner employment in manufacturing in each country. This "miscellaneous" group has been excluded from the comparison because the component industries are not entirely comparable between the two countries. Data are also shown separately, in some tables, for motor vehicles and parts because of the special interest in the automotive industry arising from the Canada-United States automotive trade agreement and the move toward wage parity in part of the industry. However, this industry is not treated separately where any aggregation or averaging of data is done because motor vehicles and parts is a component of transportation equipment, one of the 15 groups.

This section first considers wages without reference to employment because for some purposes concern is with relations among the wages themselves and not in the number of people receiving them.^{1/} However, references already made in Section II to average wages in all manufacturing cover averages weighted by employment in each manufacturing industry. When we want to know the net effect of wage changes on the general international wage differential, the influence of shifts in employment must be taken into account, which is done in the second and final part of this section.

^{1/} Nevertheless, individual figures on average hourly or weekly wages for a particular manufacturing industry group are themselves weighted by employment in each establishment or statistical reporting unit within that group. What is meant in the text above is that in aggregating or averaging data for the 15 groups, in the first part of this section each group is given an employment weight of one, regardless of its actual employment.

Some modifications of the Canadian and U.S. industry classifications have been made (described in the footnotes to Table III-1) so that the industry groups in both countries are as comparable as possible, in terms of the products manufactured. The modifications were necessary because, while the industry classification codes are quite similar, there are differences.^{2/} The result is the 15 groups of manufacturing industries used here.

Some of these groups are more narrowly specialized and cover a less diversified group of products than others. It is important to stress this fact because even though each manufacturing group covers broadly the same products in each country, some products are bound to be a relatively more important part of the total activity of the industry group in one country than in the other. Such differences can significantly affect the average wages and the international wage differential for an industry. For example, if wages are appreciably higher than average in the establishments making certain types of chemical products, and if this product group accounts for relatively more employment in the United States than in Canada, this enhances the U.S. average wage relative to the Canadian for that industry group. It has not been possible to consider this aspect of the situation, but it must be mentioned, and it is hoped that subsequent research in this subject will consider it.^{3/}

Certainly, the tobacco products industry, for example, comprises a much more homogeneous group of establishments -- homogeneous, that is, in terms of products -- than, say, the chemical group which includes the manufacture of explosives, fertilizers, industrial chemicals, drugs, cosmetics, paint, soap, and so on. But a comparison of wages even in tobacco products has its perils because cigar making is relatively more important than cigarette manufacture in the United States compared with Canada.

Before proceeding with the analysis, it is necessary to point out certain highly significant characteristics of the data on average hourly and weekly wages. Figures representing average earnings of all wage earners (usually covering all production and maintenance employees including shipping and warehousemen and deliverymen) indicate how much money (exclusive of the value or cost of fringe benefits) the workers

^{2/} Gradually the Canadian Standard Industrial Classification adopted in 1948 has been replaced by a revised classification introduced at the end of 1960, and all wages and employment data produced by the Dominion Bureau of Statistics are now on the new basis. Any subsequent comparisons of Canadian and United States wages will require different modifications because this analysis is in terms of data published on the basis of the earlier classification, which were available for years up to and including 1965. (See the appendix to Section II for more details.)

^{3/} By and large it should be possible because most of the necessary data are available.

have earned per hour or per week, averaged for all workers covered by the survey.^{4/} Such averages include straight-time, piecework, and overtime earnings, shift premiums, some kinds of bonus payments, holiday and vacation pay and so forth.

The U.S. Bureau of Labor Statistics computes a figure for average hourly earnings excluding overtime payments, using a formula that allows for all overtime hours being paid for at $1\frac{1}{2}$ times the straight-time rates. The Dominion Bureau of Statistics has not made such an adjustment,^{5/} so that Canadian data include overtime pay; therefore, the comparisons with the United States must be in terms of gross earnings.

^{4/} The Canadian data are from the D.B.S. survey of employment and payrolls which covers all manufacturing establishments with at least 20 employees (a few years ago, it was 15) and all establishments in multi-establishment firms. The U.S. data are obtained by the Bureau of Labor Statistics in co-operation with State agencies that collect data each month on employment, payrolls and man-hours from a sample of establishments. In nearly all industries all establishments with 250 or more employees are included and the number of smaller establishments included depends, for each industry, on the relative importance of employment in such establishments -- the greater the proportion, the larger the number included.

The D.B.S. survey is described in technical notes in each issue of the monthly reports, Employment and Payrolls, and Man-Hours and Hourly Earnings. The D.B.S. survey is described in B.L.S. Bulletin No. 1458: Handbook of Methods for Surveys and Studies, Chapter 2.

^{5/} However, some developmental work, undertaken jointly by D.B.S. and the Canada Department of Labour, has produced data on premium pay. Preliminary data appeared in the D.B.S. Daily for Jan. 30, 1969.

To the extent that overtime pay is an especially large factor in an industry in one country and not in the other, the comparison is less accurate.^{6/} Fortunately, the all-manufacturing difference in weekly hours paid for was not very great in 1965 or 1966, as shown below, and while Canadian hours were appreciably longer than those in the United States in 1949, 44 hours was the prevalent work week at that time, compared with 40 or less today, so that overtime pay was not as significant a factor.

^{6/} For example: assume the normal work week in both countries is 40 hours, after which overtime premium pay of one and one-half times the regular rate applies. Assume that in one country hours paid for are 41.0 per week and in the other they are 42.0; in the former country, actual weekly pay (hence the average paid per hour) will be 1.2 per cent higher than if all 41 hours are paid for at straight-time rates, and in the latter country the average for the 42 hours will be 2.4 per cent higher. Average weekly earnings in the country reporting 42 hours would be 2.4 per cent higher than those in the country reporting 41 hours if both countries had no overtime premium pay. Assuming actual average hourly earnings of \$1.75 for the 41 hours and \$2.00 for the 42 hours, this is a difference of 25.0 cents or 14.3 per cent (that is, the \$2.00 is 114.3 per cent of \$1.75). If all pay were at straight-time, the average in the former case would be \$1.73 for 41 hours and, in the latter, \$1.95 for 42 hours, a difference of 10.3 per cent. And the ratio of 114.3 where overtime is included is 1.4 per cent greater than the ratio of 112.7 where all pay is at straight-time. (At \$1.75 per hour, on 41 hours per week, weekly earnings would be \$71.75; if the final hour of the 41 is compensated at time and a half, it is equivalent to 41.5 hours at straight-time, or \$1.729 per hour - i.e., $\$71.75 \div 41.5$. At \$2.00 per hour, on 42 hours per week, weekly earnings would be \$84.00, equivalent to 43 hours at straight-time, or \$1.953 per hour.) Of course, this difference varies with the straight-time hourly rates paid in each case. For example, reversing the situation so that \$1.75 per hour is the average for 42 hours and \$2.00 for 41 hours (still a difference of 14.3 per cent except that it is now the 41-hour week that is in the higher hourly wage position), converted to straight-time the \$2.00 becomes \$1.98 and the \$1.75 becomes \$1.71, the \$1.98 being 115.8 per cent of the \$1.71, compared with the ratio of 114.3 when overtime is accounted for. Thus, more overtime where wages are already higher than where there is less overtime exaggerates the difference in straight-time earnings (as in the first example) and more overtime where the wages are lower reduces the difference (as in the second example).

Average Weekly Hours Paid For

	Canada			United States		
	1949	1965	1966	1949	1965	1966
All manufacturing	42.2	41.0	40.8	39.1	41.2	41.3
Durable goods	42.4	41.7	41.3	39.4	42.0	42.1
Nondurable goods	42.0	40.4	40.3	38.9	40.1	40.2

Scrutiny of Table III-1 shows that the 1965 difference in hours was great enough in some industry groups to be likely to affect the wage differential. In the following groups Canadian hours were at least one hour greater than those reported for the United States: leather products, clothing, nonmetallic mineral products. It is possible that the Canadian hourly earnings figure is inflated by the overtime factor, relative to the U.S. figure, but only in so far as the standard work week is no lower on the average in the United States than in Canada, and overtime premium is not at a higher rate (for example, double time instead of time and a half).^{7/} U.S. hours were at least one more than the Canadian in 1965 for paper products and transportation equipment. There is a good chance that some of the excess in U.S. hourly earnings over the Canadian in 1965 for these two industry groups was caused by the longer U.S. hours and the likelihood of more overtime pay.

There is yet one more element in the comparison that requires mention before the comparisons themselves can be made. The figures on average hourly and weekly earnings are an average of wages paid to all hourly rated employees in the establishments surveyed. In effect, the average hourly earnings shown for an industry are the total wage-earner payroll for the period covered divided by the total number of man-hours paid for. The figure is an average of the earnings of all wage earners from the lowest to the highest paid, from the least skilled to the most highly skilled. The greater the proportion of well paid, (presumably) highly skilled workers in an industry, the higher its average hourly earnings will be, and vice versa. And in so far as the proportion of relatively high-paid workers increases in an industry, average hourly earnings increase more than would otherwise be the case. Moreover, to the extent that the skill mix in an industry is "richer" in one country than the other, the average wage will be enhanced. (Assuming, of course, that the more highly skilled a job is considered to be, the more highly it is paid.)

Average wage data (hourly, weekly, or for any other time period) tell us what the employer has paid for his labour input (production or wage-earner labour, that is), exclusive of the cost of such fringe benefits as pension, welfare and insurance plans, and so on that are not included in the data described here. These are not a true index of labour cost which requires information on productivity as well. But it is a first step. The data also tell us what workers on the average are earning. From these figures we can measure how much workers are better or worse off, in terms of their average earnings, in one industry or region than in other industries or regions.

^{7/} Accurate comparisons of the standard work week and overtime pay practices are not easily made because while Canadian data are available annually from the Labour Department survey of working conditions, U.S. data are mostly confined to what is found in collective agreements.

If, however, our interest is in wages as a price, that is, what a particular job or skill fetches in the labour market, the analysis must be in terms of occupational wage rates. So far as possible, such a wage rate must be expressed as a rate of pay for a specified job. These wage rates, if they are to be authentic, must be "purified" of extraneous complications, like variations caused by overtime pay, bonuses and differences in skill so great that the figures collected refer to pay for a group of jobs, rather than one clearly defined skill.

Canada-United States comparisons of wage rates are called for in the consideration of claims for wage parity. Any attempt to establish parity of average wages for a large group of workers would be frustrated by variations over time in the many conditions already described which affect the movement of average wages. Furthermore, it would be unjust because the claim for wage parity usually rests on the concept of "equal pay for equal work", and parity on the average could conceal many disparities in the case of specific skills. Finally, wage rate comparisons are useful to anyone examining relative prices in the two countries; after all, wage rates are a set of prices for particular jobs. However, this study concentrates on comparisons of average wages because the approach followed is to move from the general to the particular, from large aggregates to smaller groups. It has not been possible in the time available to devote very much time to occupational wage rate comparisons which calls for the selection of jobs for comparison and ensuring that the jobs selected are comparable in both countries.

The following analysis indicates the extent of the average earnings gap in the manufacturing industries and how much it has changed between 1949 and 1965. The analysis is subject to the many qualifications already expressed and which are now summarized. Among the important differences in Canadian and U.S. average hourly and weekly earnings data that affect the comparison are the following:

- (1) the amount of overtime worked in each country;
- (2) differences in survey coverage of establishments; because it is generally known that wages are usually lower in small than large establishments, any tendency of the U.S. survey to give greater weight to large establishments will enhance the U.S. average compared with the Canadian which is based on a survey of all establishments with at least 20 employees (at least 15 in 1949) and some smaller ones as well;
- (3) differences in the skill mix at a particular time, or changes in the differences over time;
- (4) the extent of piecework in one country, compared with the other, and whether it is more or less well paid than timework.^{8/}

Perhaps subsequent research will make possible some "quantification" of these and other factors. In any event, at least the differences are recognized as factors influencing the comparison and, except for possibly serious differences in survey coverage (factor number two), they do not invalidate the comparison — they only complicate it.

^{8/} This final point was not discussed previously but is added to the list because it may be important in some cases.

Finally, one rather technical point needs brief mention before the data are analyzed. The U.S.-Canada wage differentials are expressed in the following analysis mostly as ratios, that is, the U.S. wages are shown as multiples of the Canadian wages, times 100. For some purposes it would be a valid procedure to analyze percentage differences rather than ratios;^{9/} therefore Table III-2A contains ratios and III-2B percentages. The following analysis refers frequently to indexes of wage change, but for some purposes it is preferable to consider the straight percentage rate of change; therefore Table III-4A contains indexes of wage change and Table III-4B, percentage rates of change.

Most of the analysis is in terms of ratios and indexes rather than percentages, partly because at certain points ratios are combined, and this cannot be done with percentages. Another important reason is best set forth in an example.

Assume U.S. wages in an industry are \$2.36 compared with \$2.25 in Canada; they are 5 per cent higher than in Canada (after rounding the percentage to the nearest full point), and the U.S./Canada ratio is 105. Assume that wages in both countries increase to \$2.40, thus eliminating any international differential. The U.S./Canada ratio has been reduced from 105 to 100. The ratio has been reduced 4.8 per cent but the differential of 5 per cent has been reduced 100 per cent. All because of an increase of 15 cents, or 6.7 per cent, in Canadian wages and an increase of 4 cents, or 1.7 per cent, in U.S. wages. The difference between the rates of increase of 6.7 and 1.7 per cent is 5 percentage points. In index terms the Canadian wage index of 106.7 is 4.9 per cent greater than the U.S. index of 101.7; but a 6.7 per cent increase is almost 4 times as great as 1.7 per cent.

In such a situation, considering the size of the absolute values, it would create a misleading impression to speak of Canadian wages increasing four times as much as U.S. wages, and to describe the move to U.S./Canada wage parity as a 100-per-cent reduction in the differential.

One could visualize another situation beginning with U.S. wages of \$2.75 and Canadian wages of \$2.25, the ratio of the former to the latter being 122.2, and ending with U.S. wages of \$2.80 and Canadian wages of \$2.70, the ratio being reduced to 103.7. The U.S. wage index would be 101.8 and the Canadian index 120.0. The ratio was reduced by 15.1 per cent, and the U.S. index was 15.1 per cent of the Canadian index. On the other hand, it could also be said that the 22.2 per cent differential declined 83.3 per cent and Canadian wages increased 11 times faster than the U.S. wages. In these latter comparisons it is not possible to compare changes in the differential with comparative rates of wage increase as it is in the former.

Analysis of Wage Differentials, Unweighted by Employment

Average hourly and weekly earnings for the manufacturing industries are shown in Table III-1 for 1949 and 1965. Between these

^{9/} Straight percentage differences are used in Section II. (See footnote 1, Section II.)

years the ratios of U.S. to Canadian average hourly earnings for the 15 manufacturing industry groups, presented in Table III-2A, decreased by 15.1 per cent, from an unweighted average of 140.8 to 119.6. Individual ratios decreased by as little as 3.9 per cent, for rubber products, and as much as 23.6 per cent, for printing and publishing. The largest differential in 1949 was in clothing, where the ratio was 157.1, and the smallest was in tobacco products, with 116.3. By 1965 the ratio for clothing was a little less than for rubber products and food and beverages, the three of them being the highest of all in 1965; clothing dropped below the level of the other two because in food and beverages and rubber products the gap closed by a very small amount. On the other hand, the greater than average reduction for tobacco products resulted in the only wage differential advantageous to Canada in 1965.

It is noteworthy that in no instance did the gap increase between 1949 and 1965, which can be seen in the third column of Table III-2A. This trend has apparently continued into 1966 and 1967, as indicated in Table III-11; the percentage reduction in the ratio was greater for 1949-1966 than for 1949-1965 in every case except for motor vehicles and parts, which is not one of the 15 industry groups. For 1949-1967, compared with 1949-1966, the reduction was greater in every case except that of textiles where it hardly changed. However, because of recent changes in the industry classification code (described earlier), it has not been possible to make 1966 and 1967 comparisons for the wood products and metal industries.

In the following table the industry groups are ranked according to the relative magnitude of the U.S./Canada average hourly earnings ratio in 1949 and 1965 (rank one being the largest, rank 15 the smallest) and according to the extent to which the Canadian index of wages in the industry exceeded the U.S. index (the ranking being in reverse order from the other two columns, rank one being the smallest margin, rank 15 the greatest).

Ranking of industry groups

	U.S./Canada Wage Differential		Relative Canadian Index ^x
	1949*	1965*	
Food and beverages	9	2	3
Tobacco products	15	15	13
Rubber products	11	1	1
Leather products	3	4	8
Textiles	6	10	11
Clothing	1	3	12
Paper products	14	14	8
Printing and publishing	2	11	15
Products of petroleum and coal	4	13	14
Chemicals	5	6	6
Wood products	12	12	7
Metal industries	10	7	5
Transportation equipment	8	5	4
Electrical apparatus	13	8	2
Nonmetallic mineral products	7	9	10

*from highest to lowest (See Table III-2A)

^xfrom lowest to highest (See Table III-4A)

Where an industry group's rank is lower in the second column than in the first, it means that the size of the wage gap for that industry, relative to the others, is greater. It is important to note that this is in relative terms only because, absolutely, all the differentials were smaller in 1965 than in 1949. Food and beverages, for example, stood ninth in 1949, meaning the differential was greater in eight of the other industry groups; by 1965 it stood second, with only one group, rubber products, having a wider differential. It happens that the rubber products differential of 133.6 was less than one point greater than that for food and beverages, but simple ranking cannot allow for the amount of difference among the groups; however, this is accounted for in a different way in a part of the analysis soon to follow.

If the rank moves upward, the differential, relative to the others, has become smaller. Thus, textiles moved from sixth to tenth place, meaning that instead of there being five industry groups with a greater differential, as in 1949, there were nine in 1965. Since the average differential declined from 140.8 in 1949 to 119.6 in 1965,^{10/} an industry like rubber products that showed the least change in its differential, ranked eleventh in 1949 with its U.S./Canada ratio of 139.0 (meaning the differential was higher in 10 other industry groups), but ranked first in 1965 with a ratio of 133.6, being the highest differential of all in that year.

An examination of the rankings in the final column (the smallest change ranking first, the greatest change ranking fifteenth) shows, not surprisingly, that the industries ranking from one to five, that is, having the five lowest degrees of change in the differential, showed a lower rank in the second column than the first; that is, their wage differential, relative to the others, became greater. These industry groups were: food and beverages, rubber products, metal industries, transportation equipment, and electrical apparatus.

Three industry groups did not change their rank between 1949 and 1965, the first two having the lowest wage gaps: tobacco products, paper products, and wood products. The industry groups shifting to a relatively smaller wage differential^{11/} were: leather products, textiles, clothing, printing and publishing, products of petroleum and coal, chemicals, and nonmetallic mineral products.

This discussion has been about changes in the ranking of industry groups in order of magnitude of the wage gaps. If the tobacco, paper products and wood products industries are excluded because they did not change their rank, simple averaging of the U.S./Canada ratios for the five industries where the gap became relatively greater shows a decline of 10.4 points between 1949 and 1965, from 138.2 to 127.8 whereas for the seven industries with relatively lower differentials in 1965, there was a much greater decline of 26.2 points, from 148.5 to 122.3. In 1949 these seven industries^{12/} on the average, had a higher

^{10/}On an unweighted basis, that is; it will be seen later that the averages are significantly different when weighted by employment.

^{11/}This means the industries that showed a higher rank in 1965 than in 1949 because the higher the number the lower the differential.

^{12/}The word "industries" is used in this text with the same meaning as "industry groups".

differential, namely 148.5, than the other five, with 138.2; but by 1965 their average was lower at 122.8, compared with 127.8 for the five that moved upward in terms of relative magnitude of the wage gap.

If the wage differential in an industry narrows between the years under consideration, it is because Canadian wages have increased more rapidly than United States wages. It is possible that wage in an industry have increased less than the average for all manufacturing industries in both countries but as long as what increases there have been were greater in Canada, the differential is reduced. Perhaps wages have increased much more than average in both countries, but if the rate of increase has been about the same in both countries, there will be little or no change in the wage differential.

This preceding observation is elementary but warrants special mention because one might be inclined to assume that the relatively high wage industries in Canada, or the ones with the largest wage increases, are likely to go farthest in closing the gap. This does not necessarily follow; it all depends on behaviour of wages in the same industry in the United States. This is demonstrated by the following analysis.

The ratios for hourly wages, averaged (unweighted) for the 15 industries were as shown in Table III-2, 140.8 in 1949 and 119.6 in 1965, a decline of 15.1 per cent. In some industries the ratio declined by less than this; for example, food and beverages, with its reduction of 5.6 per cent was 62.9 per cent less than the 15.1 per cent average, while printing and publishing, with its 23.6 per cent reduction in the ratio, exceeded the average by 56.3 per cent. The relative change in each industry ratio is shown in a table, to follow presently.

Wages are, of course, higher in some industries than others. The relation of average hourly earnings in each industry to the unweighted average for all manufacturing is shown in Table III-3. Thus, for food and beverages, the average hourly earnings of 86 cents for the Canadian industry in 1949 were 87.8 per cent of the unweighted average of 98 cents for the 15 industry groups, compared with a percentage of 87.7 for the U.S. industry that year, which was the relation of its average hourly earnings of \$1.21 to the unweighted average of \$1.38 for the 15 industry groups.^{13/} Any industry with a ratio of greater than 100 (the ratio being the industry average divided by the all-industry average, the quotient multiplied by 100) has above average wages. It is clear from Table III-3 that wages in food and beverages -- to continue with that industry -- have been below average. However, these ratios tell us how much above or below average the wages are in each case, and a comparison of an industry's ratio for 1965 compared with 1949 shows whether the position of its wages has improved or deteriorated during that time. What has happened for Canada is shown in Table III-6 and for the United States in III-7 in the columns containing the index

^{13/} At the risk of being repetitious, it is pointed out once more that the all-manufacturing average is not weighted by employment at this point because the analysis is concerned first with straight wage structure as such, with the influence of employment considered subsequently.

of relative wages. For the Canadian food and beverages industry the wage structure index of 85.5 in 1965 was 97.4 per cent of the 1949 index of 87.8; its relative position had slipped a little. (The wage structure indexes are in Table III-3 and the indexes of relative wages in Tables III-6 and III-7.)

An index of relative wages higher than 100 indicates an improvement in the industry's relative wage position, a figure below 100, a deterioration.^{14/} However, it is quite possible for an industry to have a "positive" relative wage index (that is, more than 100) and still have below average wages. It simply means that its relative position has improved. Nevertheless, for Canadian industries, every one with a positive relative wage index in Table III-6 shows an above average position (that is, over 100) in the 1965 wage structure indicated in Table III-3. However, food and beverages in the United States had a relative wage index of 108.2 (Table III-7) and a wage structure index for 1965 of 94.9 (Table III-3); a similar condition held for tobacco products.

Of the nine Canadian industries with above average wages in 1965 (Table III-3), all but one, rubber products, were more above average than they were in 1949. Therefore, except for rubber products, the relative wage indexes (Table III-6) were positive. The other six Canadian industries, plus rubber products, had negative relative wage indexes because in every case their position in the wage structure moved downward. What this means is that the relatively better wage industries in 1949 were even more so in 1965 and the relatively poor wage industries in 1949 were even poorer in 1965; except for rubber products which was above average in 1949 and less above average in 1965. Needless to say, this discussion is of relative positions because wages increased in absolute terms in all industries.

Of the nine U.S. industries that were above average in 1965, six had positive relative wage indexes, but three did not (Table III-7); the relative positions of printing and publishing, petroleum and coal products, and electrical apparatus had shifted downward but not enough to move them out of an above average position in the wage structure. The six other industries were below average in 1965 but two of them had positive relative wage indexes, food and beverages, and tobacco products; they improved their position in the wage structure, but not enough to move from below average in 1949 to above average in 1965. The other four below average industries had negative indexes of relative wages; the wages in leather products, textiles, clothing and wood products slipped to an even more below average position than was the case in 1949.

^{14/} The words, "improvement" and "deterioration" suggest that high or rapidly rising wages are good while low or slowly rising wages are bad. Such value judgments are not intended here; the words are used to make a little easier this rather complex presentation.

It happens that the Canadian industries whose position in the domestic wage structure improved, experienced the greatest narrowing of the wage gap with their U.S. counterparts. This will be expanded on presently, but one more element in this analysis must first be introduced, and that is the relative rate of wage increase in these industries in Canada vis-à-vis the United States. It can be seen at a glance from Table III-4A that the index of average hourly earnings was greater for each industry in Canada than in the United States. It is also obvious that the Canadian index exceeded the U.S. index by widely varying amounts, by as little as 4.1 per cent in rubber products and as much as 30.9 per cent in printing and publishing.

Naturally, to the extent that the Canadian wage index exceeded the U.S. index, the wage gap was narrowed. If the comparative wage indexes (Table III-4A, last column) are ranked, from the lowest to the highest, the ranks will match those for the percentage reduction in the wage gap (from lowest to highest - Table III-2A). (As explained earlier, comparisons of this kind must be of index numbers and ratios, as in Table III-2A and III-4A, rather than of percentage differences and percentage rates of change, as in Table III-2B and III-4B.)

The table that follows contains the data required for analyzing what relation there may be between change in an industry's position in the domestic wage structure and the extent to which the Canada-U.S. wage gap narrowed. Column (2) contains figures showing in plus or minus percentages, the difference between the amount of reduction in the wage gap for that industry and the average reduction for all the industries shown. One must remember that the wage gap narrowed between 1949 and 1965 for all the industries, as indicated in Table III-2A. But for some industries the gap narrowed by more than the average of 15.1 per cent and for others it narrowed by less; all of which is set forth in column (2) of the table on page 67.

Six industries experienced a greater than average narrowing, or compression, of the wage gap; they were tobacco products, textiles, clothing, printing and publishing, products of petroleum and coal, and nonmetallic mineral products.

Four of these industries were in the group with the six lowest Canada-U.S. differentials in average hourly earnings in 1965, being tobacco products (the lowest differential), products of petroleum and coal (third lowest differential), printing and publishing (fifth lowest), and textiles (sixth lowest); clothing, in spite of the substantial (relatively speaking) closing of the gap, still had the third highest differential in 1965, exceeded only by food and beverages, and rubber products, while nonmetallic mineral products stood ninth in order of magnitude of its wage gap. However, clothing moved down from having the highest differential in 1949 to the third highest in 1965, and nonmetallic mineral products moved from seventh to ninth highest.^{15/} (Each industry's position will be discussed further on in this part of Section III.)

^{15/} This discussion is based on the ranking of industry groups, shown on page 62.

	(1)	(2)	(3)	(4)	(5)	(6)
			Canada		United States	
	Relative Wage Increase ¹	Relative Change in US/Canada Ratio ²	Index of Relative Wages ³	Position in Wage Structure 1965 ⁴	Index of Relative Wages ⁵	Position in Wage Structure 1965 ³
Food and beverage	90.1	-62.9	97.4	85.5	108.2	94.9
Tobacco products	105.4	+28.5	118.7	104.2	112.6	81.6
Rubber products	88.4	-74.2	94.7	101.4	107.1	113.3
Leather products	98.6	- 9.3	89.2	68.2	90.4	73.4
Textiles	102.6	+13.9	87.8	72.4	85.4	73.0
Clothing	102.9	+15.2	83.8	65.9	81.5	71.5
Paper products	98.6	- 8.6	105.9	114.5	107.4	103.5
Printing & publishing	111.2	+56.3	103.7	120.6	93.1	119.5
Products of petroleum & coal	110.4	+52.3	108.4	136.0	98.2	128.1
Chemicals	97.4	-15.2	106.8	107.9	109.7	112.9
Wood products	97.7	-13.2	92.1	87.4	94.3	84.0
Metal industries	96.4	-21.2	101.3	112.6	105.0	116.4
Transportation equipment	95.4	-27.2	100.7	119.2	105.6	125.4
Electrical apparatus	89.5	-66.9	88.2	98.1	98.6	100.8
Nonmetallic mineral products	100.9	+ 4.6	104.0	101.9	103.0	102.3

¹ Each index in the last column of Table III-4 A, indicating the extent to which wages in the industry increased more in Canada than in the U.S., is expressed here as an index, in turn, of the average comparative index of 117.7 shown in that table.

² Percentage more or less for each change in the ratio for hourly earnings (Table III-2A, column 3) of the change in the unweighted average of the ratios, which was -15.1%. (For example, the 5.6% reduction in the ratio for food and beverages was 62.9% less than the 15.1% average, and the 23.6% reduction for printing and publishing was 56.3% more than average).

³ See Table III-6, column 2.

⁴ See Table III-3.

⁵ See Table III-7, column 2.

To ascertain the association between change in an industry's position in its domestic wage structure and the degree of change in its Canada-U.S. wage differential, the 6 positive percentages shown in column (2) are compared, first with the Canadian relative wage index in column (3) and then with the U.S. index in column (5). It might be expected that the Canadian relative wage indexes for all six of these industries would be positive (that is, 100 or more), meaning their position in the wage structure improved, considering that the difference with U.S. wages was reduced more than average. This was so with four of them, tobacco products, printing and publishing, petroleum and coal products, nonmetallic mineral products, but not for textiles and clothing. The relative decline of these latter two industries between 1949 and 1965 can be seen in Table III-3. But what is significant is that for all six industries the Canadian index of relative wages was higher than the U.S. index. This means that either the Canadian industry improved its position in the Canadian wage structure more than its counterpart in the U.S. wage structure or that its position deteriorated less.

Next, these same six industries are examined in terms of their position in the wage structure in each country in 1965. The preceding analysis considered the change in each industry's relative position between 1949 and 1965 while the concern here is with the position at one point in time. Not only were the wage structure indexes negative (that is, less than 100, meaning their wages were below average), for the same two industries, textiles and clothing, as was the case with the relative wage indexes, described above, but for one of these industries and another the Canadian wage structure index was less than the U.S. index; these industries were clothing and nonmetallic mineral products^{16/}. The association between the extent of change in an industry's Canada-U.S. wage differential and its 1965 position in the wage structure in each country was weaker than the association with the degree of change in the industry's wage structure position between 1949 and 1965.

A similar relation is found for the nine industries having a less than average reduction in the wage gap. In the case of relative wage change domestically, five of the industries in Canada showed a decline between 1949 and 1965, which one might expect, considering that their differential with U.S. wages did not narrow by as much as the average; however, four industries did have a positive relative wage index,^{17/} meaning they improved their Canadian wage position between the years. All the same, the relative wage index was higher in each instance for the U.S. industry. With the wage structure index this was not so for two industries, paper products and wood products.

To sum up: Whenever the relative wage position of an industry in Canada either improved more than its counterpart U.S. industry, or its position shifted downward but less than it did in the United States, the Canada-U.S. wage differential for that industry narrowed by more than average. Conversely, whenever the relative position of a Canadian

^{16/} In the case of nonmetallic mineral products the difference is so small--101.9 in Canada, 102.3 in the U.S.--that it would probably be less misleading merely to say that their wage structure indexes were virtually the same.

^{17/} In the case of transportation equipment with 100.7 this was just barely the case.

industry either declined more than the counterpart U.S. industry or moved upward but not as much as in the United States, the differential narrowed by less than average.^{18/}

At the same time, there was not the invariable association between an industry's position in the wage structure in Canada vis-à-vis the United States and the relative extent of its narrowing of the wage gap, as there was with respect to changes in an industry's relative wage position. In other words, the fact that a Canadian industry had much above average wages in 1949 was not necessarily followed by a greater than average reduction in its U.S./Canada wage ratio between 1949 and 1965. In fact, there appears to have been very little correlation one way or the other.

How similar is the internal wage structure of the 15 manufacturing industry groups in the two countries? Analysis of Table III-3 provides the answer. The industry with the highest wages was the same in both countries in both 1949 and 1965, petroleum and coal products; its relative position in 1949 was slightly higher in the United States (130.4) than in Canada (125.5), but by 1965 its U.S. position declined slightly (to 128.1) while its Canadian position improved considerably (to 136.0). In 1949 the U.S./Canada wage ratio was fourth highest for this industry (146.3) but by 1965 it was third lowest (112.7); the 23.0 per cent decline in the ratio was exceeded by only one industry.

The industry with the lowest wages was the same in both countries in 1965, clothing; but in 1949 the position of leather products in Canada was slightly lower than clothing (76.5 compared with 78.6), while in the United States tobacco products was considerably below clothing (72.5 compared with 87.7). The U.S./Canada wage ratio was highest of all in clothing in 1949 (157.1) and third highest for leather products (149.3); by 1965 the ratio was third highest for clothing (129.8) and fourth highest for leather products (120.6). While tobacco products improved its position in the United States, from the lowest wage industry in 1949 (its relative position being 72.5) to the fourth lowest in 1965 (at 81.6), wages in the Canadian industry increased 46.1 per cent more than in the U.S. industry (see Table III-4B; the Canadian index was 24.1 per cent higher - Table III-4A) and by 1965 it was the only industry where wages were higher in Canada than in the United States. Even in 1949 the ratio at 116.3 was the lowest of any industry although U.S. average hourly earnings were higher. Nevertheless, tobacco products was a below average industry on the wage scale in 1949 in Canada as well as the United States -- in fact, only three industries ranked lower -- but it was a little above average by 1965 and eight industries ranked lower (Table III-3).

The range of hourly wages increased considerably in Canada between the terminal years; in 1949 the top wage of \$1.23 in petroleum and coal products was 64.0 per cent above the lowest wage of 75 cents in leather products, but by 1965 the difference between the top wage (\$2.91 in petroleum and coal products) and the lowest wage (\$1.41 in clothing) had widened to 106.4 per cent. The range hardly changed in the United States; in 1949, at 80.0 per cent (the difference between \$1.80 in petroleum and coal products and \$1.00 in tobacco products) it was greater than

^{18/} It happens that the relation between shifts in the relative domestic wages and relative U.S./Canada wage ratio constitutes a mathematical identity, so that a situation the opposite of that described above would be impossible. See technical Appendix A to Section III.

the 64.0 per cent range in Canada, but by 1965, at 79.2 per cent (the difference between \$3.28 in petroleum and coal products and \$1.83 in clothing), it was much less than the Canadian range of 106.4 per cent.

Although the U.S. range remained virtually the same, inter-industry variation of wages increased, but it increased more in Canada. On the basis of an unweighted average of 98 cents for the 15 industries in Canada in 1949, the standard deviation was 14 cents and the coefficient of variation (the standard deviation as a percentage of the mean) was 14.3 per cent.^{19/} In 1949 interindustry variation was greater in the United States; based on an unweighted average of \$1.38 the standard deviation was 23 cents and the coefficient of variation 16.7 per cent. In 1965 the Canadian average was \$2.14, the standard deviation 42 cents and the coefficient of variation 19.6 per cent, compared with 14.3 per cent in 1949. At the same time the U.S. average was \$2.56, the standard deviation 48 cents, the coefficient of variation 18.8 per cent, compared with 16.7 per cent in 1949.

While the U.S. coefficient was 2.4 points higher in 1949 than the Canadian coefficient, by 1965 the Canadian coefficient was .8 higher than the U.S. figure. The Canadian coefficient increased 37.1 per cent compared with 12.6 per cent for the U.S. figure. During the same time the Canadian range, described above, increased 66.3 per cent while the U.S. range hardly changed. It should also be noted that the Canadian range widened at both ends; the relative position of the lowest wage industry shifted downward from 76.5 in 1949 to 65.9 in 1965 and for the highest wage industry it moved up from 125.5 to 136.0. The relative positions of the low and high-wage U.S. industries did not change significantly, from 72.5 to 71.5, and from 130.4 to 128.1.^{20/}

The industries with above-average wages were very much the same in both countries, and similarly with below-average wages. Industries with positive wage structure indexes (i.e., above 100.0; see Table III-3) were the same in 1949 and 1965 except for paper products, being above average in Canada in 1949 and below average that year in the United States, for tobacco products which was above average in Canada in 1965 and below average in the United States, and electrical apparatus in 1965, which was slightly below average in Canada and slightly above in the United States. However, this does not mean that, except for the industries just named, each industry was equally above or below average in both countries. An inspection of Table III-3 shows that this is not so.

The Canadian wage structure index for tobacco products was 21.1 per cent higher than the U.S. index in 1949 and 27.7 per cent higher in 1965; this industry had the greatest difference in its relative wage position between the two countries. The paper products industry had a Canadian wage structure index 12.1 per cent higher than the U.S. index in 1949 and 10.6 per cent higher in 1965. On the other hand, the Canadian clothing industry index was 10.4 per cent less than the U.S. index in 1949 and 7.8 per cent less in 1965. A notable reversal was in rubber products where the 1949 wage structure index was 1.2 per cent higher in Canada, and by 1965 had slipped to 10.5 per cent less than the U.S. index.

^{19/} As with the rest of the analysis thus far, the averages and standard deviations are not weighted for employment, which is done later.

^{20/} As indicated earlier in this section, and as can be seen from Table III-3, the lowest and highest wage industries were not always the same in 1949 and 1965, but the above discussion is of the range between the lowest and highest wages, not of the position of particular industries.

In 1949 seven of the 15 Canadian wage structure indexes were higher than the indexes for the same industries in the United States; six industries had indexes no further apart than 2 per cent, and for six other industries the differences were more than 2 per cent but less than 10 per cent. The three industries with differences greater than 10 per cent were tobacco products, clothing, and paper products. The average difference between the 1949 Canadian and U.S. indexes (ignoring plus and minus signs) was 5.7 per cent.

In 1965 five Canadian wage structure indexes were higher than in the United States (compared with seven in 1949). Three industries had indexes less than 2 per cent different (compared with six in 1949), and nine industries had differences more than 2 per cent but less than 10 per cent (compared with six industries in 1949). The three industries with differences exceeding 10 per cent were tobacco products (as in 1949), paper products (also as in 1949), and rubber products (instead of clothing, as in 1949). The average difference between the Canadian and U.S. indexes was 6.7 per cent, somewhat higher than the 5.7 per cent of 1949.

The reason for the greater differences of the relative wage positions in 1965 compared with 1949 is the greater increase in inter-industry wage differences in Canada compared with the United States. This was demonstrated in the comparison of Canadian and U.S. standard deviations and coefficients of variation, which appears a few paragraphs earlier in this section.

This part of Section III concludes with detailed analysis of wage trends and differentials in each of the 15 industry groups.^{21/}

Food and beverages: the Canada-U.S. wage gap was ninth highest for this industry in 1949 but was the second in order of magnitude by 1965, the 5.6 per cent reduction (from 140.7 to 132.8) being the third smallest among the 15 industries. Between 1949 and 1965 hourly wages increased 11.9 per cent faster in the Canadian industry than in the United States compared with an average Canadian margin of 38.5 per cent (these are rates of increase, as shown in Table III-4B; the Canadian index exceeded the U.S. index by 6.0 per cent, as shown in Table III-4A). The Canadian increase of 112.8 per cent was less than the Canadian 15-industry average of 118.4 per cent and was the seventh lowest rate of increase, in contrast with the U.S. increase of 100.8 per cent, which, while lower than the Canadian rate, as all of them were, was higher than the average U.S. rate of 85.5 per cent, the increase for this industry being exceeded by only two others in the United States; the industry was fourth lowest in the Canadian wage structure in both 1949 and 1965, its position in relation to average wages declining slightly (its index of relative wages being 97.4 - see Table III-6), its wages in 1965 being 14.5 per cent below average compared with about 12 per cent in 1949; the industry was fourth lowest in the United States as well in 1949 but improved its position by 1965 when it ranked sixth (meaning five industries had lower wages), compared with third in 1949, and its wages moved up from being about 12 per cent below average in 1949 to only five per cent below in 1965 (its index of relative wages being 108.2).

^{21/} The reader with an interest in the general picture only can skip this analysis, which is intended for readers with a special interest in a particular industry or industries.

Tobacco products: the wage gap was not only lowest of all in this industry in both years but by 1965 the industry was the only one in which Canadian wages were higher than those in the United States. The United States-Canada ratio moved from 116.3 to 93.7, a reduction of 19.4 per cent, a rate of decline exceeded by only two industries, and 4.3 points greater than the average reduction of 15.1 per cent. Over the period wages increased 159.3 per cent in Canada, the highest Canadian increase and much above the average of 118.4 per cent, but in the United States the wages also increased fastest, at 109.0 per cent, compared with the 15-industry average of 85.5. The Canadian rate of increase exceeded the U.S. rate by 46.1 per cent compared with the average Canadian margin of 38.5 (Table III-4B); the Canadian wage index exceeded the U.S. index by 24.1 per cent (Table III-4A); the Canadian industry moved up from being fourth lowest in the wage structure in 1949 to ninth lowest in 1965, while in the United States it moved from lowest position to fourth lowest. In Canada its wages moved from being 22.2 per cent below average to 4.2 per cent above, but in the United States they remained below average, but moved up from being 27.5 per cent to 18.4 per cent below; the greater improvement in Canada is shown by the Canadian relative wage index of 118.7, compared with the U.S. index of 112.6.

Rubber products: this industry showed the greatest shift of all in the relative size of its wage gap. In 1949 the U.S./Canada ratio of 139.0 was lower in only four industries but by 1965 no industry had a higher ratio (i.e., a wider gap) than this one, with 133.6; the reduction of its ratio by 3.9 per cent was lowest of all and only one quarter of the average rate of reduction of 15.1 per cent. Canadian wages increased 106.7 per cent, the sixth lowest rate of increase and below the average of 118.4, while the U.S. wages increased 98.6 per cent, the fifth highest rate, and in excess of the U.S. average of 85.5. The Canadian rate of increase exceeded the U.S. rate by 8.2 per cent (Table III-4B; the Canadian wage index exceeded the U.S. index by 4.1 per cent - Table III-4A), the smallest difference, which, of course, explains why the reduction in the Canada-U.S. gap was smallest for this industry. The industry's position in the Canadian wage structure dropped from being ninth from the bottom, at 107.1 to seventh, at 101.4 managing, however, to remain slightly above average (represented by 100). The industry's standing in the United States at eleventh place (fifth down from the top) did not change but its relative position moved up from 105.8 to 113.3; the relative decline of the industry's wage position in Canada and advance in the United States is illustrated by the Canadian relative wage index of 94.7, compared with the U.S. index of 107.1.

Leather products: the wage gap for this industry narrowed at almost the same rate (13.7 per cent) as for paper products, and, like that industry, the position of its wage gap (in relation to other industries) remained virtually the same (third largest in 1949, fourth largest in 1965) but, unlike paper products, with one of the smallest differentials, this industry had one of the largest. The U.S./Canada ratio dropped from 149.3 to 128.8; the rate of wage increase was third lowest in both countries at 94.7 per cent in Canada (the 15-industry average was 118.4) and 67.9 per cent in the United States

(with an average of 85.5). The Canadian increase exceeded the U.S. rate by 39.5 per cent (Table III-4B), but the margin of its index of wage increase of 116.0 over the U.S. index was the same as for paper products (Table III-4A) and both industries ranked eighth in terms of this margin, which put both industries at mid-point among the 15 industries, the same position they held with respect to the amount of decrease in their wage gap.^{22/} The industry had the lowest wages of all these industries in Canada in 1949, which were 23.5 per cent below average, and had the second lowest wage in 1965, but the difference had increased, the wages by then being 31.8 per cent below average, and the position was not much better in the United States, the 1949 wages at 18.8 per cent below average being second lowest and in 1965, at 26.6 per cent below average, the third lowest. While the industry improved its rank by one step in each country, its relation to average wages deteriorated slightly more in Canada than in the United States as shown by the Canadian relative wage index of 89.2 and the U.S. index of 90.4

Textiles: this industry moved from having, at 145.7, the sixth largest wage gap, which was close to the 15-industry average of 140.8 in 1949, to the tenth largest (that is, it was larger in nine industries) in 1965, which, at 120.6, was also close to the average of 119.6. The 17.2 per cent reduction in the U.S./Canada ratio was exceeded in only four industries, from which it follows that the margin of the Canadian over the U.S. index of wage increase (Table III-4A) was exceeded only by the same four industries. The rate of wage increase was below average in both countries but sufficiently more below average in the United States to permit a much greater than average narrowing of the wages gap. In fact, Canadian wages increased 91.4 per cent, the second lowest rate of increase, and less than the average rate of 118.4, but U.S. wages increased only 58.5 per cent, also the second lowest rate, and much less than the average of 85.5 (the Canadian rate of increase exceeded the U.S. rate by 56.2 per cent, as shown in Table III-4B, but the Canadian index of wage increase exceeded the U.S. index by 20.8 per cent, as shown in Table III-4B). The Canadian industry stood third from the bottom in both years, its wages dropping from 17.3 per cent below average to 27.6 per cent below by 1965, and the U.S. industry dropped from third to second lowest, and its wages from 14.5 per cent below average to 27.0 per cent below; the Canadian index of relative wages was 87.8 and the U.S. index 85.4.

Clothing: in 1949 the wages gap was highest in this industry and, with U.S. wages 57.1 per cent higher than Canadian wages, the gap was 40 per cent greater than the average differential of 40.8 per cent (in ratio terms the 1949 differential of 157.1 exceeded the all-industry average of 140.8 by 11.6 per cent). Like textiles, it experienced one of the most substantial reductions in the differential, the decline of 17.4 per cent from the 1949 ratio of 157.1 to the 1965 ratio of 129.8 being greater than the average reduction of 15.1 per cent, and exceeded in only three industries. But, because Canadian clothing wages were so much more below average in 1949 than

^{22/} In fact, leather products ranked eighth with its decrease of 13.7 per cent, and paper products ninth, with 13.8 per cent. With such a small difference the industries can be said to have the same rank.

the U.S. wages (21.4 per cent below average, compared with 12.3 per cent in the United States - the industry's wages were second lowest in Canada, fourth lowest in the United States), the wage gap moved only from largest in 1949 to third largest in 1965. In both countries the rate of wage increase was lower than for any of the other manufacturing industries, but at 83.1 per cent in Canada, even though much less than the Canadian average of 118.4 per cent, it was 62.3 per cent more than the U.S. increase of 51.2 per cent (the 15-industry U.S. average being 85.5). In index terms, the Canadian index of wage increase of 183.1 exceeded the U.S. index of 151.2 by 21.1 per cent, and this Canadian margin over the U.S. index was exceeded in only four industries and was greater than the average margin of 17.7 (Table III-4A). The indexes of relative wages were very close, 83.8 for Canada, and 81.5 for the United States.

Paper products: only in tobacco products was the wage gap lower than for this industry, which was so in both 1949 and 1965, but through this period six industries showed a greater percentage reduction in the Canada-U.S. differential than paper products; the differential narrowed from 125.5 to 108.2, a reduction of 13.8 per cent, less than the average reduction of 15.1 per cent. In both countries the rate of increase of hourly wages was exceeded by only three industries (tobacco products and chemicals in both countries, plus petroleum and coal products in Canada, food and beverages in the United States), with the Canadian increase of 131.1 per cent exceeding the U.S. increase of 99.2 per cent by 32.2 per cent (the Canadian index of wage increase of 231.1 exceeded the U.S. index of 199.2 by 16.0 per cent). In both countries the industry moved two steps up in the wage structure, in Canada from tenth to twelfth position, in the United States from seventh to ninth. Paper products wages in Canada moved from being 8.1 per cent above the unweighted 15-industry average in 1949 to 14.5 per cent above in 1965, and in the United States from being 3.6 per cent below average to 3.5 per cent above. That the wage position of the U.S. industry improved a little more than that of the Canadian industry is indicated by the U.S. index of relative wages of 107.4 compared with the Canadian index of 105.9.

Printing and publishing: there was a considerable shift in the position of wages in this industry, from having the second highest wage ratio (155.3) in 1949 to the eleventh highest, which is fifth lowest (118.6) in 1965. Its 23.6 per cent narrowing of the gap was the greatest for any industry (but petroleum and coal products, with 23.0 per cent, was a close second), and the Canadian margin of 73.3 per cent over the U.S. rate of increase of wages was the greatest of all and much greater than the average margin of 38.5 (see Table III-4B). Its Canadian wages moved from third highest in 1949, at 16.3 per cent above average, to second highest in 1965, at 20.6 per cent, whereas the U.S. wages moved down from second place, at 28.3 per cent above average in 1949, to third place, at 19.5 per cent above average in 1965. The slight improvement in the industry's Canadian wage position and its shift downward in the United States are seen from the Canadian index of relative wages of 103.7 and the U.S. index of 93.1.

Petroleum and coal products: like printing and publishing, this industry's wage position changed considerably. In 1949 only three of the 15 industries had a higher U.S./Canada wage ratio but by 1965, the ratio having declined 23.0 per cent, from 146.3 to 112.7, only two industries had a lower differential. Its Canadian wages increased 136.6 per cent during the period studied, the second greatest rate, and much higher than the 15-industry average of 118.4, while in the United States wages increased 82.2 per cent, a little less than the average of 85.5, five industries showing smaller increases and nine, larger ones. As with printing and publishing, the difference between the Canadian and U.S. increases meant a Canadian margin over the U.S. rate of increase much greater than the average margin -- 66.2 per cent compared with 38.5 (see Table III-4B). The Canadian wage index exceeded the U.S. index by 29.9 per cent compared with an average margin of 17.7 per cent (see Table III-4A). This industry had the highest wages of all 15 industries in both countries in both years, but while it widened its margin over the average in Canada, from 25.5 to 36.0, its U.S. position slipped just a little from 30.4 to 28.1, so that the Canadian index of relative wages was 108.4, and the U.S. index, 98.2.

Chemicals: the wage gap for this industry declined from 143.4 (the fifth highest) to 125.1 (the sixth highest), a reduction of 12.8 per cent, less than the average of 15.1 per cent, and exceeded by nine industries. Wages increased noticeably more than average in both countries, the Canadian increase of 133.3 per cent, exceeded by only two industries, the U.S. increase of 103.5 per cent exceeded in only one case. The Canadian increase exceeded the U.S. increase by 28.8 per cent, less than the average margin of 38.5 per cent (Table III-4B), which explains why the wage gap was reduced by less than average (in terms of indexes, the Canadian index exceeded the U.S. index by 14.6 per cent, compared with 17.7 per cent for all industry - Table III-4A). In Canada the industry moved up from eighth to tenth place in the wage structure while its U.S. position was tenth both years, but the relative position improved in both countries, in Canada from almost average at 101.0 to 107.9, and in the United States, from 102.9 to 112.9, the improvement being greater in the United States with an index of relative wages of 109.7 compared with 106.8 in Canada.

Wood products: the ratio of U.S. to Canadian wages for this industry dropped from 132.3 in 1949 to 115.0 in 1965, the fourth smallest both years, the reduction of 13.1 per cent in the wage gap being exceeded in eight other industries and less than the average reduction of 15.1 per cent for the 15 industries. Wages increased less than average in both countries, by 101.1 per cent in Canada (the average 118.4) and 74.8 per cent in the United States (the average 85.5) the 35.2 per cent margin of Canadian increases over the U.S. increases being less than the average margin of 38.5 per cent. The Canadian index of wage increase exceeded the U.S. index by 15.0 per cent, a little less than the all-industry average of 17.7 per cent, which explains why the Canada-U.S. differential decreased a little less than average (Table III-4A). In both countries the industry slipped down the wage structure from sixth to fifth place, from being 5.1 per cent below average in Canada in 1949 to 12.6 per cent below in 1965, from 10.9 per cent below in the United States in 1949 to 16.0 per cent below

in 1965. The decline was a little greater in Canada with its index of relative wages of 92.1, than in the United States, with its index of 94.3.

Metal industries: in 1949 the U.S./Canada wage ratio was smaller in five other industries than this industry's 140.4 but in 1965 it was smaller in eight other industries than its 123.7. The 11.9 per cent reduction was less than the average of 15.1 per cent and there were smaller reductions in only four industries. The 1949 to 1965 increases in both countries were less than the increases in six other industries but were still above average, the Canadian increase of 121.9 per cent exceeding the 15-industry average of 118.4 per cent, the U.S. increase of 94.8 per cent exceeding the average of 85.5. However, Canadian wages increased only 27.7 per cent faster than U.S. wages, compared with 38.5 per cent for all industry (Table III-4B), and the Canadian wage index exceeded the U.S. index by 13.5 per cent, compared with the all-industry average of 17.7 per cent (Table III-4A), all of which explains why the reduction in the ratio was less than average. The industry stood eleventh (that is, its wages were fifth from the top) in Canada in both years and twelfth in both years in the United States, the position of wages in the Canadian industry moving only from 11.2 per cent above average to 12.6 per cent, but moving up more noticeably in the U.S. industry, from 10.9 per cent above average to 16.4 per cent. The greater U.S. improvement is reflected in a U.S. index of relative wages of 105.0 compared with the Canadian index of 101.3.

Transportation equipment: the 1949 ratio of 141.4 was about the same as the 15-industry average of 140.8; in fact it stood in mid-position, with higher differentials in seven industries and lower differentials in seven other industries. The 1965 ratio of 125.9 was larger than the average of 119.6 and by this time there were ten industries with larger differentials; the 11.0 per cent reduction in the ratio was the fourth smallest, and was less than the average reduction of 15.1 per cent. In both countries wages over the period increased a little more than average, in Canada 119.8 per cent, compared with a 118.4 per cent average, in the United States 95.7 per cent compared with an average of 85.5, but wages increased more rapidly in seven other Canadian industries and in five other U.S. industries, and while the Canadian increase was 25.2 per cent greater than that in the United States, this was much less than the average Canadian margin of 38.5 per cent (Table III-4B). The Canadian index of wage increase exceeded the U.S. index by 12.3 per cent, compared with the all-industry average of 17.7 per cent (Table III-4A), which is why the U.S./Canada ratio declined by less than average. The industry's wages were second highest in Canada in 1949 and third highest in 1965 and, contrariwise, third highest in the United States in 1949 and second highest in 1965. The Canadian wages changed very little relatively, from 18.4 per cent above average to 19.2 per cent above, but in the United States they moved from 18.8 per cent above to 25.4 per cent above, the Canadian relative wage index being 100.7, the U.S. index, 105.6.

Electrical apparatus: the 5 per cent reduction in the wage ratio was the second smallest among the 15 industries. The

industry moved from having the third smallest differential in 1949 to being almost in the middle of the range--eighth smallest--in 1965, its U.S./Canada ratio in 1949 of 129.4 being much less than the average of 140.8, while its 1965 ratio of 122.9 was a little larger than the average of 119.6. The 1949-1965 Canadian wage increase of 92.7 per cent was the second smallest, and much less than the average of 118.4 per cent, while the U.S. increase of 83.0 per cent was only a little less than the average of 85.5 per cent and greater than the increases in six other industries, the result being that the Canadian increase exceeded that in the United States by only 11.7 per cent, compared with an average Canadian margin of 38.5 per cent (Table III-4B). The Canadian index of wage increase exceeded the U.S. index by only 5.3 per cent, compared with the all-industry margin of 17.7 (Table III-4A), which explains the relatively small reduction in the U.S./Canada ratio. The industry lost ground in the Canadian wage structure, moving from 11.2 per cent above average, with fourth highest wages, to 1.9 per cent below average in 1965, with nine industries having higher wages, while in the United States there was little change, wages being 2.2 per cent above average in 1949 and ninth highest, and 0.8 per cent above average in 1965 and seventh highest. The relative wage index in Canada was 88.2, compared with 98.6 in the United States.

Nonmetallic mineral products: the U.S./Canada ratio narrowed by 15.8 per cent (the sixth largest reduction and close to the 15-industry average of 15.1 per cent), from 142.7 in 1949 (the sixth largest and somewhat larger than the average of 140.8) to 120.2 in 1965 (the ninth largest and slightly more than the average of 119.6). The Canadian increase in wages of 127.1 per cent was exceeded in four industries and was greater than the average increase of 118.4 per cent, while the U.S. increase of 91.2 per cent, although higher than the average of 85.5 per cent, was exceeded in seven industries, with the result that the Canadian increase was 39.4 per cent higher than the U.S. increase, a margin that was exceeded by six industries and close to the average Canadian margin of 38.5 per cent (Table III-4B). In terms of indexes of wage increase, the Canadian index of 227.1 exceeded the U.S. index of 191.2 by 18.8 per cent, very close to the average of 17.7 per cent for the 15 industries (Table III-4A), which is why the reduction in the U.S./Canada ratio was close to the average. In both countries wages moved from being slightly below average to slightly above, in Canada, from 2 per cent below to 1.9 per cent above and from seventh position (that is, six industries had lower wages) to eighth position, and in the United States from 0.7 per cent below to 2.3 per cent above average, remaining in eighth position both years. The Canadian index of relative wages was 104.0 and the U.S. index, 103.0.

Analysis of Wage Differentials, Weighted by Employment

Analysis of wage variation without reference to employment is useful for the study of "pure" wage behaviour. For this reason, the preceding part of this Section III examined wage structure in terms of the relation of individual industry (or industry group) wages to a simple average of all these wages. In other words each wage (i.e., average hourly earnings) figure was given the same value or weight when combined

for calculation of an average. Our concern, up to this point, has been with how Canadian wages in 15 manufacturing industry groups have compared with wages in the counterpart industries in the United States. It was logical therefore, to compare a particular wage differential with an average differential for all the industries based on an unweighted average of wages because attention was on the differentials as such and not on the number of wage earners affected.

This having been said and an analysis along such lines having just been completed, it must be added that a most misleading impression of the significance of the industry differentials can be created if for a particular industry - to use a hypothetical example - Canadian employment accounts for only 5 per cent of the all-industry total and in the United States it accounts for 20 per cent. Which is why the employment factor is introduced at this point. It does not require a complete re-doing of all the previous analysis, only the recomputation of the all-industry averages and statistical measures of dispersion. A more thorough adjustment of all the computations is not necessary because, although introducing the employment effect brings about some significant changes, it does not substantially alter the relative position of individual industries in the domestic wage structures.^{23/}

What effect does the distribution of employment have on the all-industry averages, on the Canada-U.S. differential and on the inter-industry dispersion of wages? If there are any large concentrations of employment in industries that have wages much above or below average (the unweighted average, that is), they will significantly influence the average wage figure and the measure of interindustry wage variation. Large differences between the Canadian and U.S. industrial distribution of employment will affect the U.S./Canada ratio.

The numbers of wage earners in each industry and their proportion of total employment are given in Table III-5 for Canada and the United States in 1949 and 1965. Applying these data as employment weights to the average hourly earnings set forth in Table III-1, weighted averages are computed. Similarly, weighted standard deviations and coefficients of variation are computed. Also, to assess the influence of different distribution of employment in the two countries, an average of Canadian wages for each year is computed using U.S. employment weights, and vice versa. The following table contains the results of these computations, which will then be discussed.^{24/}

^{23/} It only alters the position of an industry's wage as a percentage of the weighted 15-industry average, compared with the unweighted average. However, the relation of one industry wage to another industry wage is not affected because employment is not considered in either case.

^{24/} The unweighted standard deviations and coefficients of variation are based on deviations from the unweighted 15-industry average of wages, while the weighted standard deviations and coefficients of variation are based on deviations from the weighted average.

	1949	1965	$\frac{(1965)}{(1949)} \times 100$
<u>Average Hourly Earnings</u>			
Canada average, unweighted	\$.98	\$2.14	218.4
U.S. average, unweighted	1.38	2.56	185.5
Canada average, Canada weighted	.99	2.12	214.1
U.S. average, U.S. weighted	1.38	2.62	189.9
Canada average, U.S. weighted	.98	2.13	217.3
U.S. average, Canada weighted	1.39	2.60	187.1

Interindustry Variation

Canada standard deviation, unweighted	.14	.42	-
Canada coefficient of variation, unweighted	14.3%	19.6%	137.1
Canada standard deviation, weighted*	.14	.39	-
Canada coefficient of variation, weighted*	14.1%	18.4%	130.5
U.S. standard deviation, unweighted	.23	.48	-
U.S. coefficient of variation, unweighted	16.7%	18.8%	112.6
U.S. standard deviation, weighted*	.19	.47	-
U.S. coefficient of variation, weighted*	13.8%	17.9%	129.7

U.S./Canada ratio of average hourly earnings			Change from 1949 to 1965
Based on unweighted averages	140.8	119.6	-15.1%
Based on weighted averages*	139.4	123.6	-11.3%

* Using domestic employment weights.

The first and most striking feature of the data is the small difference caused by applying employment weights; and this is so even when the employment weights of one country are applied to the wages data of the other country. This means that interindustry differences in wages are offset by differences in the distribution of employment such that weighting does not substantially affect the all-industry average. Either that, or the differences almost cancel out; this happens when one industry with much above average wages also has a high concentration of employment and another industry with much below average wages has a

sufficiently high employment concentration to offset any effect the high-wage industry would otherwise have in raising the all-industry average.^{25/}

^{25/} To illustrate this by an example, assume three wage figures and three alternative employment weights as follows:

	1	2	3
\$1.25	25%	20%	40%
\$1.00	50%	40%	40%
\$.75	25%	40%	20%
\bar{W}	\$1.00		
\bar{W}_1	1.00		
\bar{W}_2	.95		
\bar{W}_3	1.05		

The unweighted average is \$1.00 and so is the first weighted average because employment is distributed along the normal curve; the second weighted average, 95 cents, is less than the unweighted because the employment distribution is skewed toward the below-average end of the wage distribution - that is, there is a concentration in the low-wage sector; similarly, the third weighted average, \$1.05, is greater than the unweighted average because of the concentration of employment at the higher wage. To turn to our 15 industries, if, for every wage that is above average (that is, higher than the unweighted average of the 15 wage figures), employment is to a compensating degree below average, the product of the relative wage and employment indexes would be 10,000 which is what it would be if the index for average in each case is 100. A computation was made using the wage structure indexes from Table III-3 for the wage side, and for employment each figure in Table III-5 representing an industry's percentage of total employment was calculated as index of 6.7 which is what proportional employment would be for each of the 15 industries if employment were evenly distributed among them (i.e., $\frac{100\%}{15}$). If wage and employment deviations from the average were perfectly offsetting in each case, the product of the indexes would be 10,000 as pointed out above, and the combined product for the 15 industries would be 150,000. The actual products as a percentage of 150,000 are shown below alongside the weighted average of hourly earnings as a percentage of the unweighted averages:

	1949	1965
Canada	101.2% of 150,000	99.3% of 150,000
.99/ .98	101.0%	2.12/2.14 99.1%
United States	100.2% of 150,000	102.3% of 150,000
1.38/1.38	100.0%	2.62/2.56 102.3%

The percentages for each year for each country are almost the same and probably would be identical except for rounding. This is to be expected. The purpose of this exercise has been to demonstrate that differences in wage and employment divergences from the average have been either offsetting or cancelled out. There is no mathematical reason why this should be so; indeed, if the lowest wage structure index for Canada, 1949 is multiplied by the index for the lowest relative employment (i.e., as a percentage of 6.7 as explained above) and the others are matched and multiplied in ascending order of magnitude, the combined products of the 15 multiplications is 111.1 per cent of 150,000. (This analysis is carried further in footnote 28).

It is not being suggested here that these attributes of relative wages and employment have any economic significance, which may or may not be the case. The fact is that different distributions of the same employment weights among the 15 industries, the wage structure remaining unchanged, could have produced in 1949 a weighted average from 11 per cent higher to 10 per cent lower than an unweighted average (or an average based on equal employment weights in all industries, which is the same thing). But no such differences did appear in Canada or the United States in 1949 or 1965.

In 1949 the Canadian weighted average was 1 cent, or 1 per cent higher than the unweighted. The U.S. weighted and unweighted averages were the same. In 1965 the Canadian weighted average was 2 cents, or almost 1 per cent less than the unweighted average, while the U.S. weighted average was 6 cents or more than 2 per cent greater than the unweighted.

While the Canadian differences are very small in both years, the fact that in 1949 the weighted average exceeded the unweighted (albeit by only 1 cent) and by 1965 was less than the unweighted indicates some shift of employment towards relatively lower wages. This is corroborated in subsequent analysis. That the U.S. 1965 weighted average exceeded the unweighted indicates some shift of employment toward relatively higher wages, which is also corroborated presently.

A comparison of the effect in 1949 of the difference in Canadian and U.S. employment distribution on average wages shows the net difference to be of little significance but the different direction in the shift of Canadian and U.S. employment is apparent from a 1965 comparison. The Canadian average for 1965, based on U.S. weights, is 1 cent greater than the Canadian-weighted figure while the U.S. average, based on Canadian weights, is 2 cents lower than the U.S.-weighted figure. This demonstrates the shift, even though a small one, of Canadian employment to the lower wage sector and of U.S. employment to higher wages.^{26/}

It has already been observed in the preceding part of this section^{27/} that when no allowance is made for the influence of employment distribution, greater changes have occurred in the behaviour of Canadian wages than in wages in the United States. While the relative range of wages (the percentage difference between the maximum and minimum) remained the same in the United States in both years, it widened considerably in Canada. Interindustry variation of wages increased in both countries but more in Canada. On an unweighted basis, the Canadian coefficient of variation increased 37.1 per cent and the U.S. coefficient only 12.6 per cent; but on a weighted basis the Canadian coefficient increased somewhat less than on the unweighted basis, 30.5 per cent, and the U.S. coefficient increased much more, by 29.7 per cent, by about as much as the Canadian coefficient.

The introduction of relative employment into the analysis leads to two important general observations: the first is that employment in

^{26/} References to shifts in employment do not mean an actual move of workers from one industry to another -- which may or may not have taken place -- but to changes in the distribution of employment. A shift to high-wage employment, for example, means an increase in the proportion of employees in industries with wages higher than the unweighted average of wages.

^{27/} See page 79.

both countries was so distributed in both years that the influence of the higher and lower wage industries did not, when weighted by employment, affect the average significantly more than if employment were evenly distributed among the 15 industries. The second observation is that in spite of the substantially wider range of wages in Canada in 1965 than in 1949 while the U.S. range did not change, there was a noticeable but not large shift of Canadian employment toward the lower wage industries and of U.S. employment toward the higher wages.

The first observation has already been explained as fully as necessary and nothing need be added.^{28/} The second observation as to shifts of employment with respect to relative wages does require some explanation.

The position of wages in each industry in relation to the unweighted 15-industry average is shown in Table III-3. The distribution of employment is shown in Table III-5. Changes between 1949 and 1965 in the wage position and relative employment for each industry are shown for Canada in Table III-6 and for the United States in Table III-7. The indexes of relative employment in III-6 and III-7 indicate to what extent the industry's proportion of total employment has increased or decreased, as revealed by the extent of each index's divergence from 100 which is the index if no change has occurred. Similarly, in each of these tables the indexes of relative wages, which have already been discussed, reveal the extent to which the wages in each industry have moved up (by how much greater than 100) or down (by how much less than 100).

^{28/} Much of the detailed exposition was in footnote 25 and for the reader who is interested, the following is added. It was pointed out in that footnote that if the wage structure indexes (Table III-3) are matched, in ascending order with the given employment weights (that is, the index for the lowest wages is matched with the smallest employment weight and so on up the scale, with the highest wage index matched with the largest employment weight) and each pair is multiplied, the combined product of the 15 multiplications for Canada 1949 is 111.1 per cent of what it would be if every wage index was matched by an employment index as much below average as the wage index was above average, and vice versa. This means that, given the existing wage structure and the employment relatives, the effect of each industry having an employment weight of the same rank as its relative wage level would be a weighted average 11.1 per cent greater than an unweighted average or -- similarly -- an average based on employment weights having, on balance, a neutral effect. If the process is reversed, the lowest wage industry having the largest employment weight and so on with the highest wage industry having the smallest weight, the combined product is 10.3 per cent less than it would be with equal distribution of employment among the 15 industries or where employment weighting has no net effect. The upper and lower limits for both countries in 1949 and 1965 are tabulated below, along with an upper/lower ratio for each year, followed by a measure of change in the form of a 1965/1949 ratio for each country:

		Upper Limit	Lower Limit	$\frac{(\text{Upper})}{(\text{Lower})}100$	$\frac{(1965)}{(1949)}100$
U.S.	1949	112.0	88.3	126.8	
	1965	113.6	86.3	131.6	103.8
Canada	1949	111.1	89.7	123.9	
	1965	114.1	85.4	133.6	107.8

Changes in the weighted average of wages for all the industries result from changes in the individual wage figures and changes in the proportion of employment. If wages in an industry improve their position 10 per cent in relation to the unweighted average at the same time as the industry's proportion of total employment doubles, the influence on the weighted average for all industries is obviously greater than if there had been no change in relative employment. Conversely, if such an upward movement in relative wages were accompanied by a corresponding reduction in the employment weight, the effect on the weighted all-industry average would be the same as it was before the changes in relative wages and employment took place. The situation in each industry is set forth for Canada in Table III-6 and for the United States in Table III-7.

We can see in Table III-6 that for the Canadian food and beverages industry, the employment weight (i.e., proportion of total employment) increased 10.6 per cent (from 10.4 to 11.5) at the same time as relative wages declined 2.6 per cent (from 87.8 per cent of the 15-industry unweighted average in 1949 to 85.5 per cent in 1965). If relative employment had not changed, the influence on the total wage bill of all the industries, and therefore on the weighted average for all the industries, would in 1965 be 97.4 per cent (i.e., 2.6 per cent less) of what it had been in 1949. If, on the other hand, the relative wage position had not changed but relative employment still increased 10.6 per cent, the influence on the weighted average would be that much greater.^{29/} The effect of the employment shifts is best explained by reference to Table III-8.

A comparison of the highest and lowest wages for each year in Table III-1 shows that in 1949 the highest Canadian wage was 64 per cent greater than the lowest, but by 1965 the difference had increased to 106 per cent, an expansion of 66 per cent. In the United States the range changed hardly at all: at 80 per cent in 1949, it was considerably more than the Canadian 64 per cent, while in 1965, at 79 per cent it was much less than the Canadian figure of 106. This is in contrast with what has happened to the midquartile range of wages, as set forth in Table III-8.

The midquartile range sets the upper and lower limits to wages received by the middle 50 per cent of all wage earners, 25 per cent receiving more than the upper limit, 25 per cent receiving less than the lower limit. The midquartile range expresses the upper quartile as a multiple (times 100) of the lower quartile. While the full U.S. range did not change, the U.S. midquartile range widened more than the Canadian, by 11.1 per cent compared with 6.9 per cent. In percentage terms, while the Canadian wage range increased 66.3 per cent between 1949 and 1965, its midquartile range increased 29.8 per cent compared with a U.S. increase of 57.5 per cent. In other words, an expanded range of wages in Canada was not matched by as great a redistribution of employment toward the higher wages.

In 1949 the Canadian upper quartile wage (i.e., the wage marking the upper limit of the third quartile and the lower limit of the fourth quartile) was 41.0 per cent higher than the lowest wage, and by 1965 was 71.0 per cent higher, an improvement of 20.6 per cent. But this is much less than the 66.3 per cent expansion of the entire wage range. In 1949 the Canadian weighted average was 99 cents and the

^{29/} The mathematics of this are set out in detail in Appendix B to this section. The appendix includes charts depicting the net movement of each industry's wage-employment position.

median figure \$1.052, indicating a sufficiently great concentration of workers at certain below average wages to pull the weighted average 5.9 per cent below what it would have been if there had been an even distribution of workers by wage level around each side of the median or central position. By 1965 the Canadian weighted average of \$2.12 was 3.4 per cent less than the median of \$2.195; the difference between the two figures was less than it had been in 1949.

The lower quartile figure for Canada was in virtually the same position relative to the median in both 1949 and 1965, actually 20.7 per cent less in 1949 and 21.1 per cent less in 1965, but the upper quartile moved from 3.2 per cent above the median in 1949 to 9.8 per cent above in 1965.^{30/} What has happened in Canada, then, is an expansion of the full wage range by 66.3 per cent, a widening of the midquartile range by 29.8 per cent (see Table III-8), accompanied by a relative upward shift of the upper quartile wage while the lower quartile has not changed relatively. All of this is reflected in the 1965 weighted average being closer to the median (3.4 per cent less) than in 1949 (when it was 5.9 per cent less).

Two questions arise: first, in view of these shifts, why should the 1965 weighted average, although closer to the median than in 1949, be less than the median at all; second, why should the weighted average be almost 1 per cent less than the unweighted in 1965 when it was 1 per cent greater than the unweighted in 1949? Earlier in this section some indications of a shift of employment towards relatively lower wages were suggested^{31/} but the above analysis suggests a shift toward higher wages.

The answer to both questions is to be found in what happened generally to the distribution of Canadian wage-earner employment, especially in the extremes of the range of wages, that is, among the lowest paid 25 per cent, those paid less than the lower quartile figure shown in Table III-8, and among the highest paid 25 per cent, those paid more than the upper quartile figure.

While the midquartile range widened 6.9 per cent because of a shift in the upper quartile figure (the relative position of the lower quartile remaining constant), and while the top wage in the range, as a multiple (times 100) of the median, expanded 13.4 per cent (from 116.9 to 132.6), these upward movements were offset in large part by a downward movement of wages (relatively, of course, to other wages, not absolutely) paid to workers in the lowest quartile. The lowest wage in the range dropped its relative position 10.0 per cent, from being 71.3 per cent of the median in 1949 to 64.2 per cent in 1965.

All of this is examined in detail in Appendix C to this section. Briefly, what has happened is that in spite of the considerable widening of the Canadian wage range between 1949 and 1965, while the U.S. range did not change, relatively fewer Canadian workers were in the upper half

^{30/} This is to be expected, knowing that the midquartile range expanded from 130.2 to 139.2 (see Table III-8) and that the relative position of the lower quartile did not change. The widened midquartile range has to be caused, therefore, by an upward movement of the upper quartile.

^{31/} See page 82.

and especially the upper quarter of the range in 1965 than in 1949, while the opposite trend occurred in the United States. In 1949, 58.9 per cent of the Canadian manufacturing wage earners were in the upper half of the wage range, and 21.1 per cent in the top quarter, compared with 45.5 per cent and 13.0 per cent respectively in the United States; by 1965 53.4 per cent were in the upper half in Canada and only 16.4 per cent in the top quarter, compared with 54.5 per cent and 26.9 per cent respectively in the United States.

The analysis in Appendix C is in terms of quartiles because this is a useful measure for examining broad shifts of employment. The charts that follow illustrate employment distribution more accurately by indicating the percentage of employment at each of the wage (i.e., average hourly earnings) figures reported. (The wage data are from Table III-1 and employment percentages from III-5).

It is easily seen from these charts that employment distribution according to wages received certainly does not follow any kind of normal curve of distribution. Indeed, rather than showing any central tendency, employment distribution in both countries in both years tends to be bimodal with concentrations of employment tending (but with exceptions) toward the lower limit of the second quarter and the upper limit of the third quarter of the wage range. This, of course, is not apparent in analysis of employment distribution by quartiles and by quarters of the wage range, which does not show how employment is in fact distributed within each quarter.

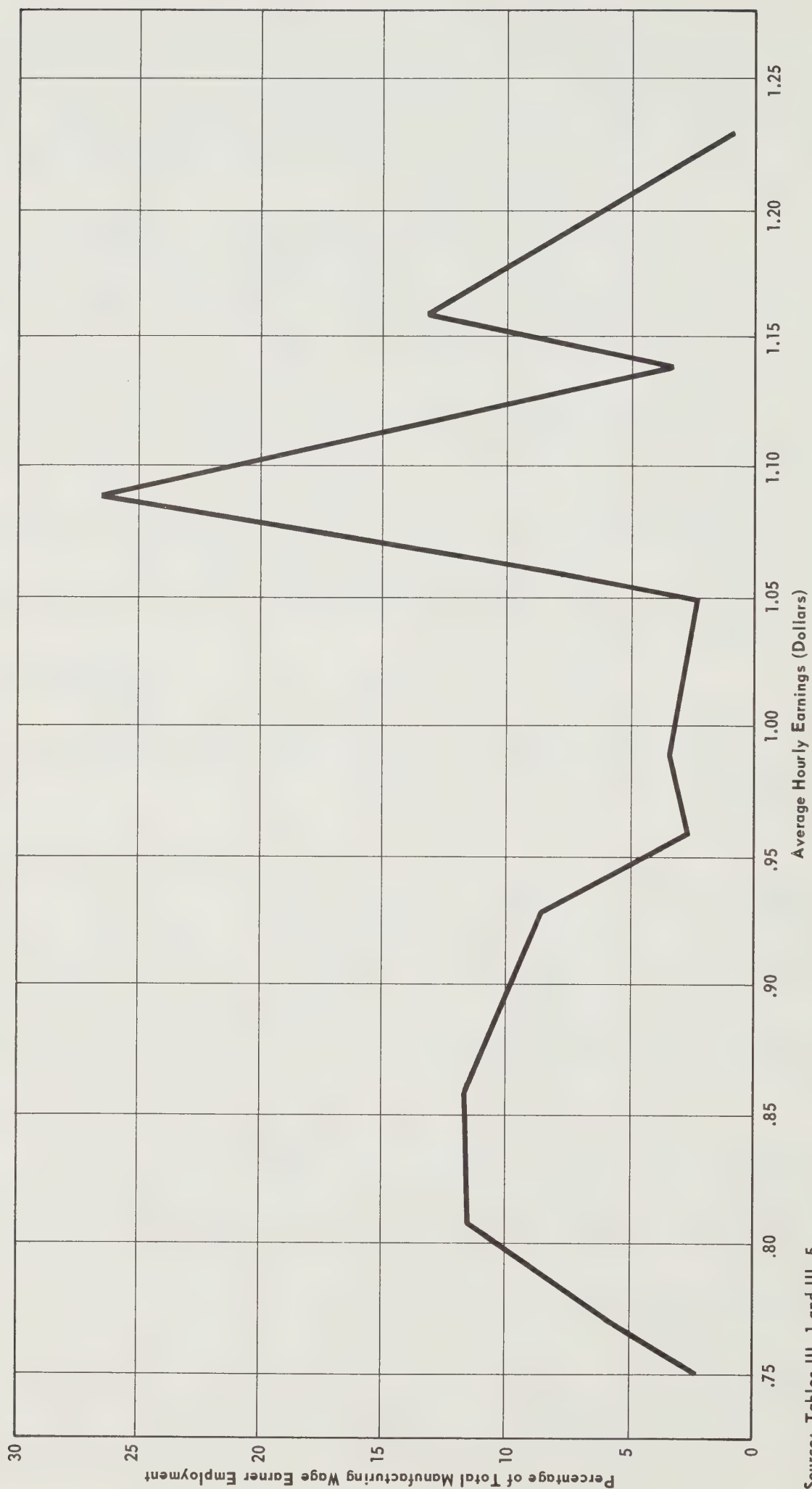
Aside from "dramatizing" the lack of central tendency and tendency toward bimodality (the latter being strikingly apparent in U.S. 1949), and revealing in more detail how employment is distributed, the charts reveal little that has not already been observed - and more quickly apprehended - in the previous analysis. Therefore, no further comment is necessary.

This section ends with a look at the industries grouped on the basis of relative growth or decline of wages and of employment. Canadian industries showing increases in relative wages between 1949 and 1965 accounted for 53.8 per cent of 1965 employment (Table III-6), compared with 59.7 per cent in the United States (Table III-7); the average improvement in relative wages was 6.2 per cent in Canada compared with 7.3 per cent in the United States. Thus, relative wage increases affected more than half of all employees in both countries but the proportion of employment and the amount of relative increase were both greater in the United States than in Canada.

Looking at it another way, the industries with increased relative employment had an average index of relative wages in Canada of 96.4 compared with 100.5 in the United States.^{32/} Thus, on the average, industries in Canada with increased relative employment showed a slight decline in relative wages, and vice versa in the United States. It must be kept in mind that all 15 Canadian industry wages increased more rapidly than their U.S. counterparts. However, the analysis here has been in terms of relative, not absolute change.

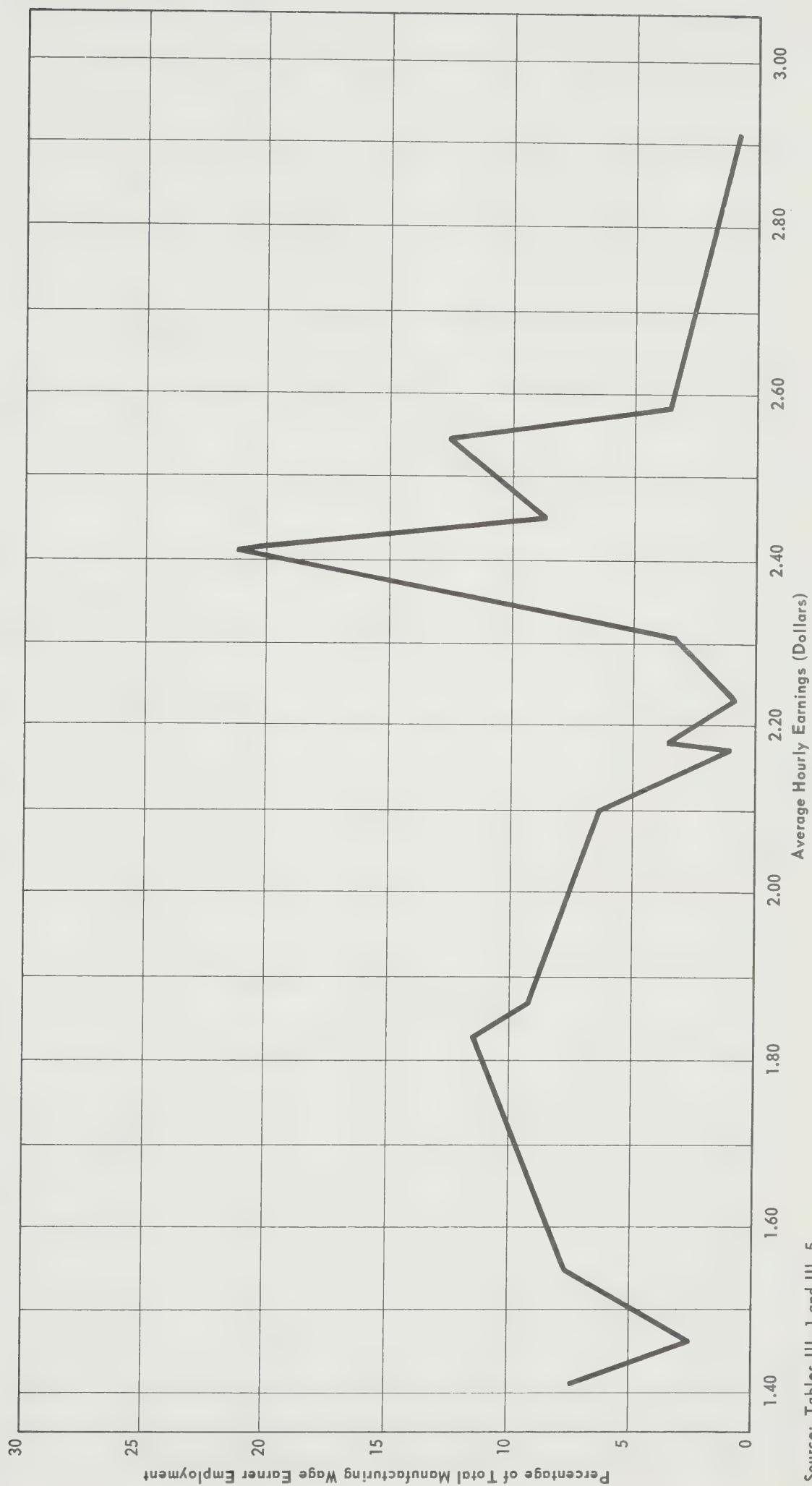
^{32/} Chemicals in Canada and rubber products in the United States, with relative employment indexes of 100.0, are excluded.

Chart III-1
DISTRIBUTION OF EMPLOYMENT BY MANUFACTURING WAGES
CANADA, 1949



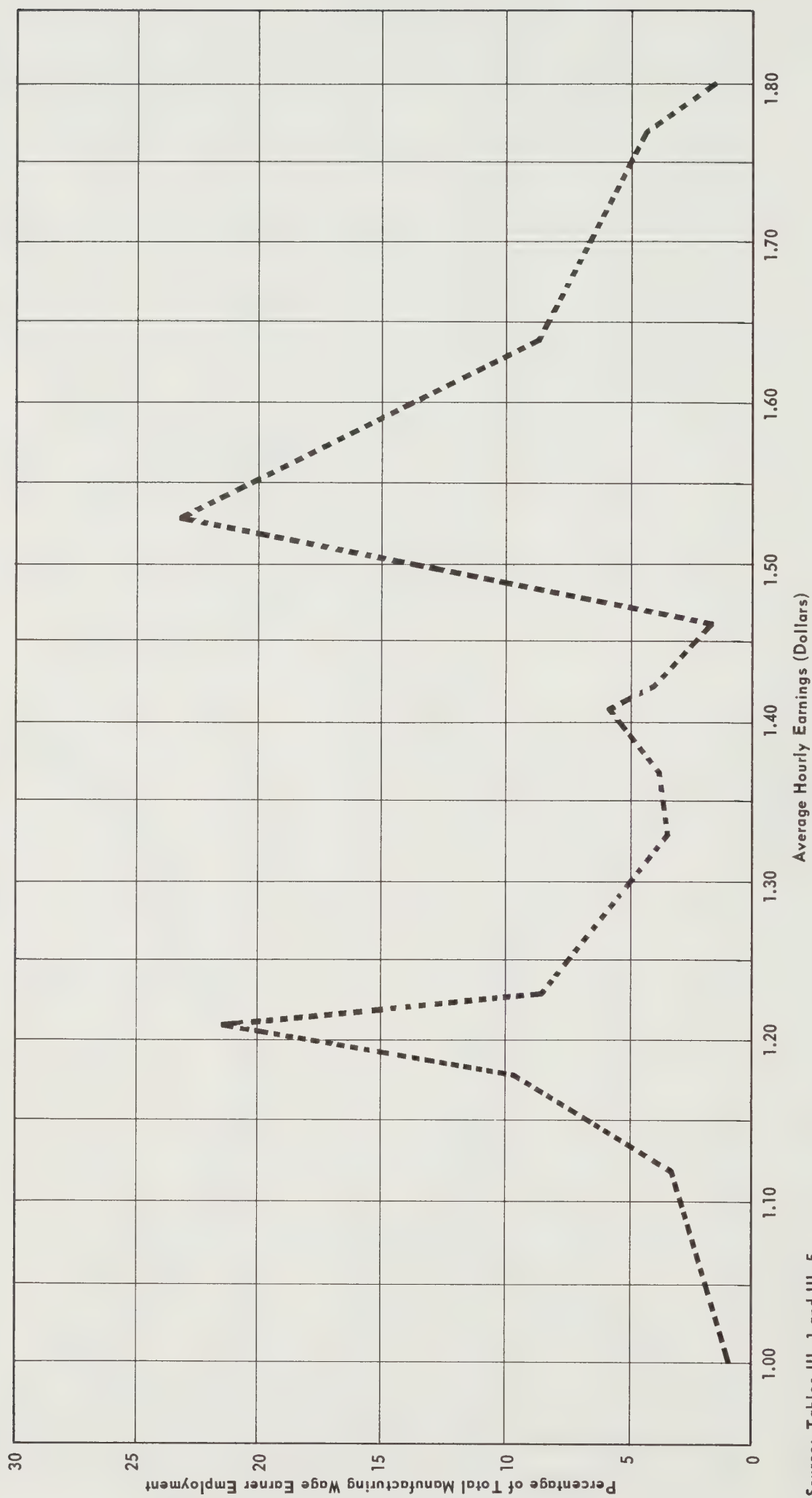
Source: Tables III-1 and III-5.

Chart III-2
DISTRIBUTION OF EMPLOYMENT BY MANUFACTURING WAGES
CANADA, 1965



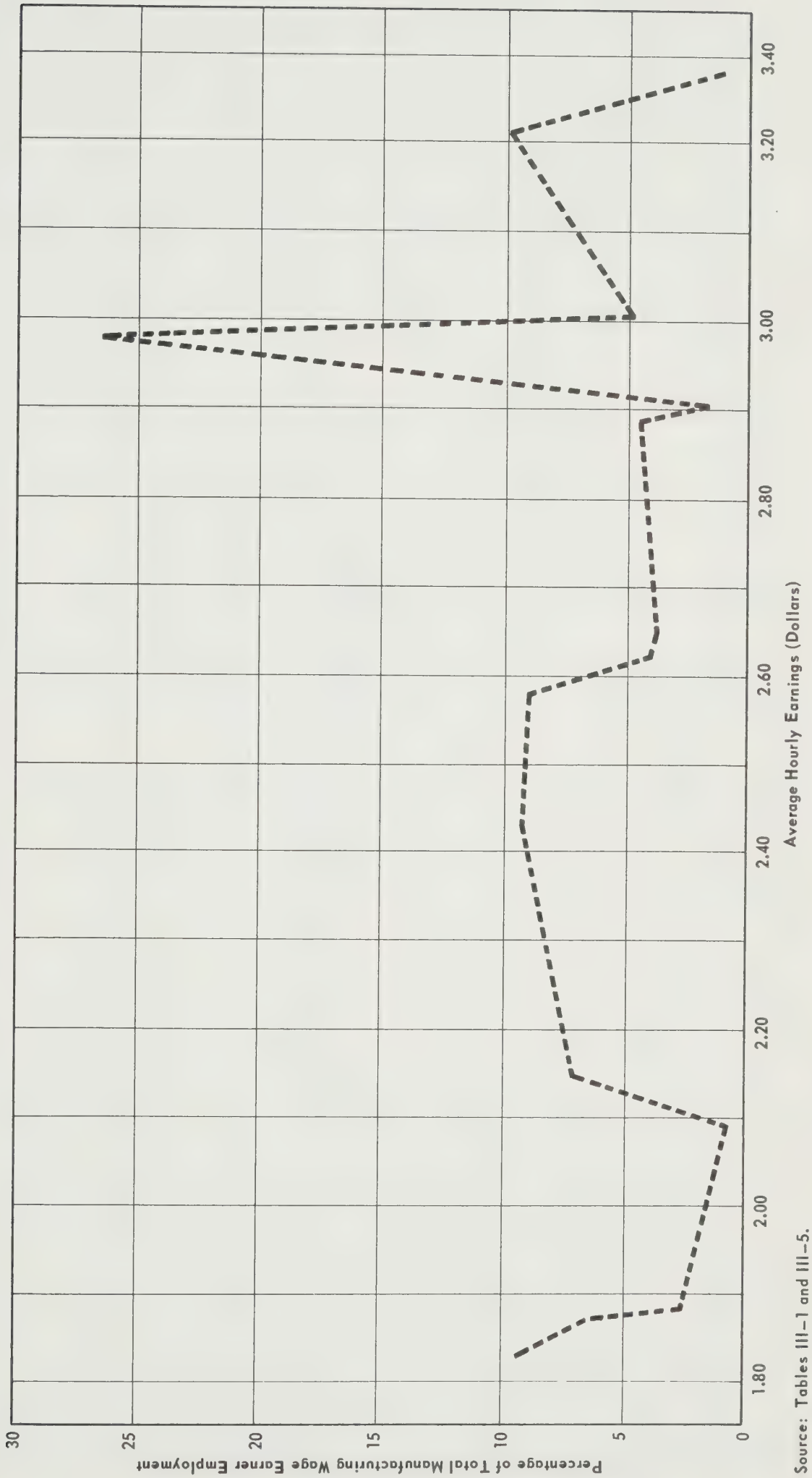
Source: Tables III-1 and III-5.

Chart III-3
DISTRIBUTION OF EMPLOYMENT BY MANUFACTURING WAGES
UNITED STATES, 1949



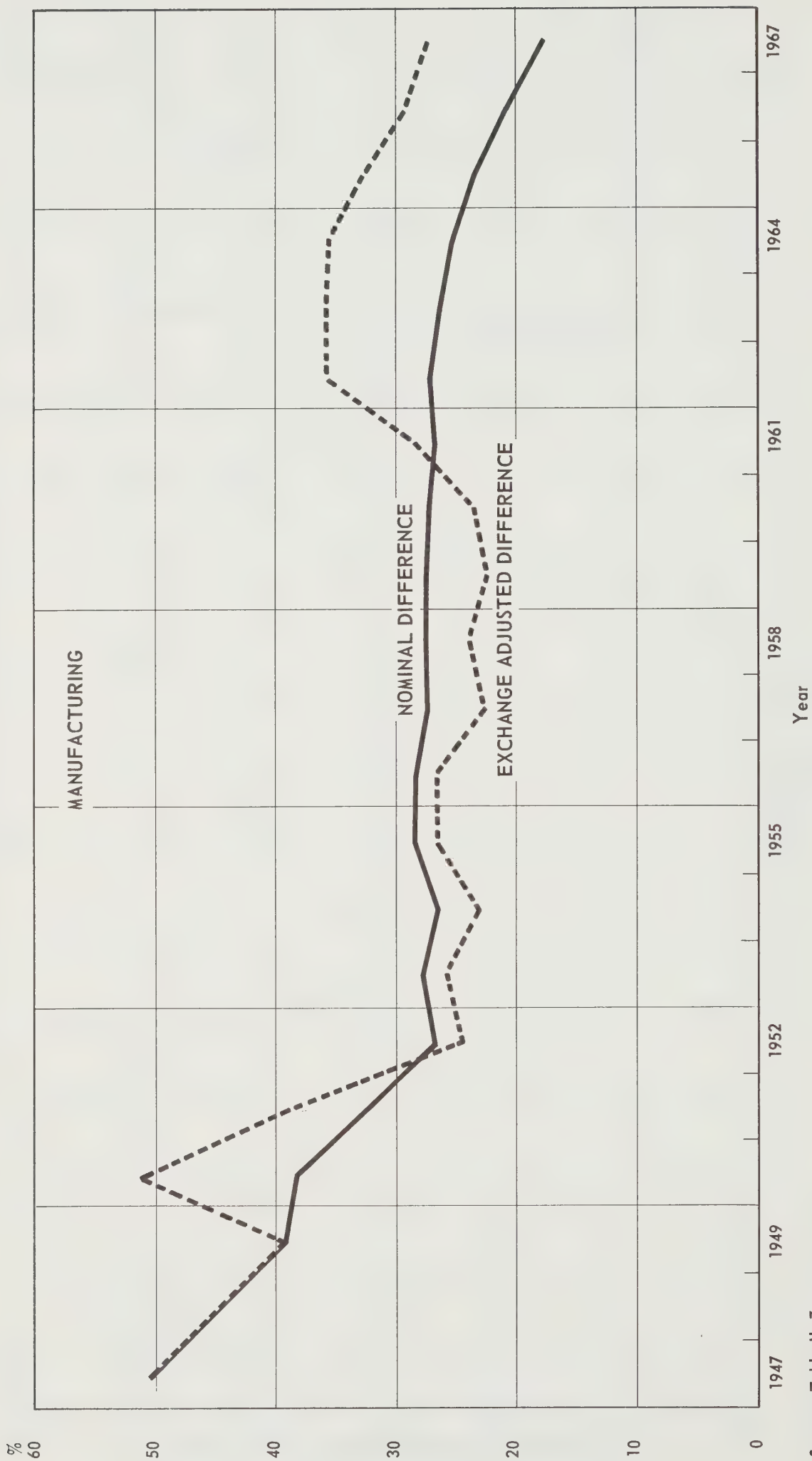
Source: Tables III-1 and III-5.

Chart III-4
DISTRIBUTION OF EMPLOYMENT BY MANUFACTURING WAGES
UNITED STATES, 1965



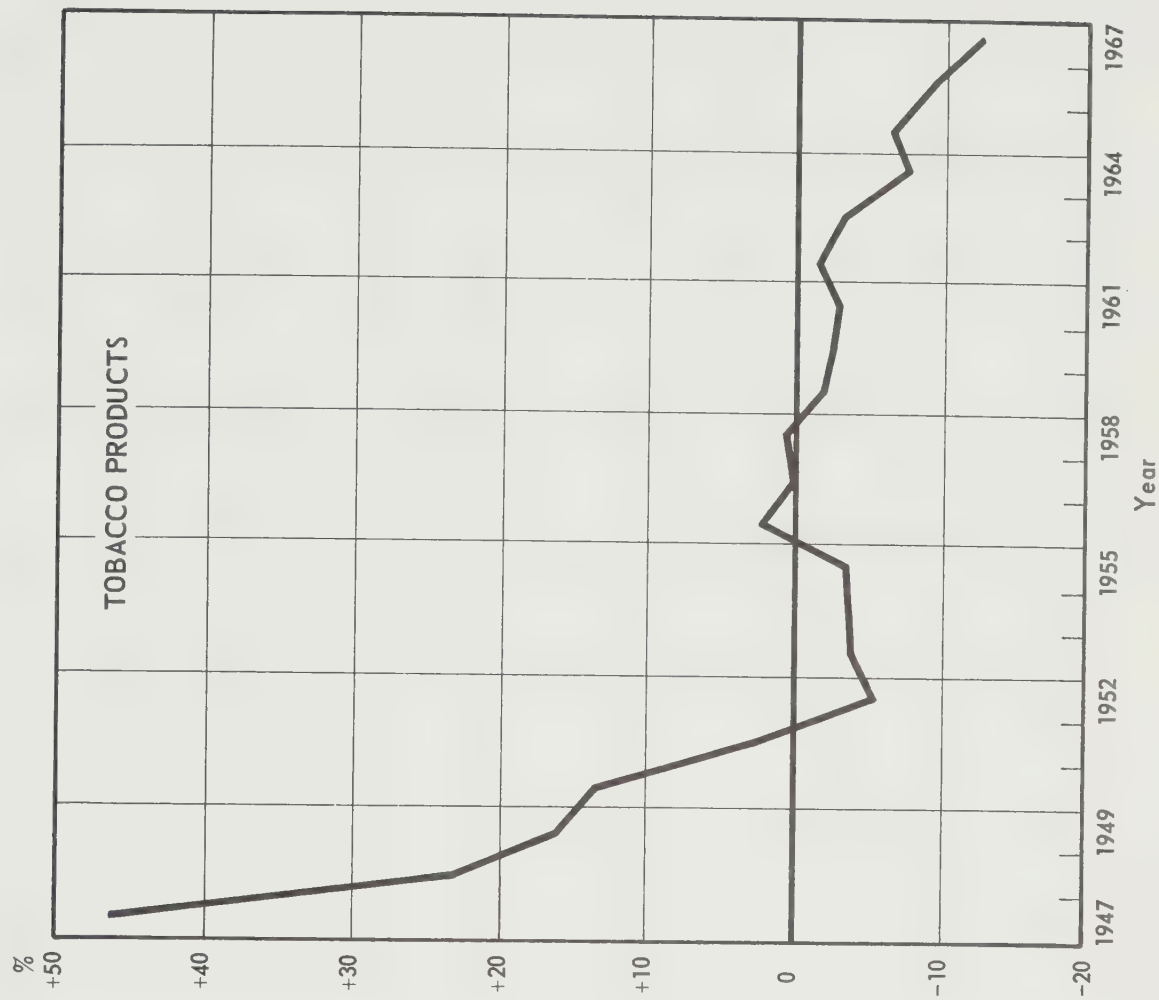
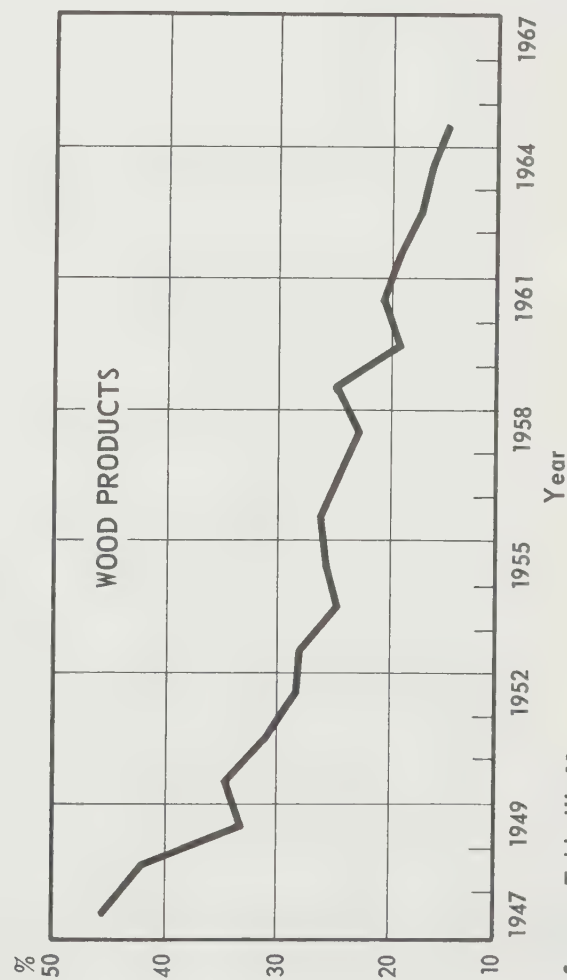
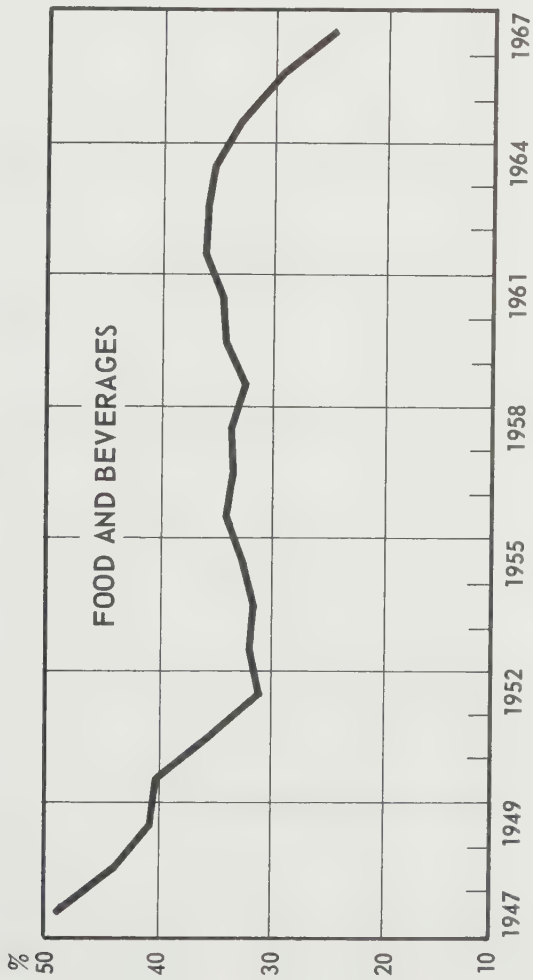
Source: Tables III-1 and III-5.

Chart III-5
WAGE DIFFERENTIALS, CANADA, UNITED STATES
1947 TO 1967



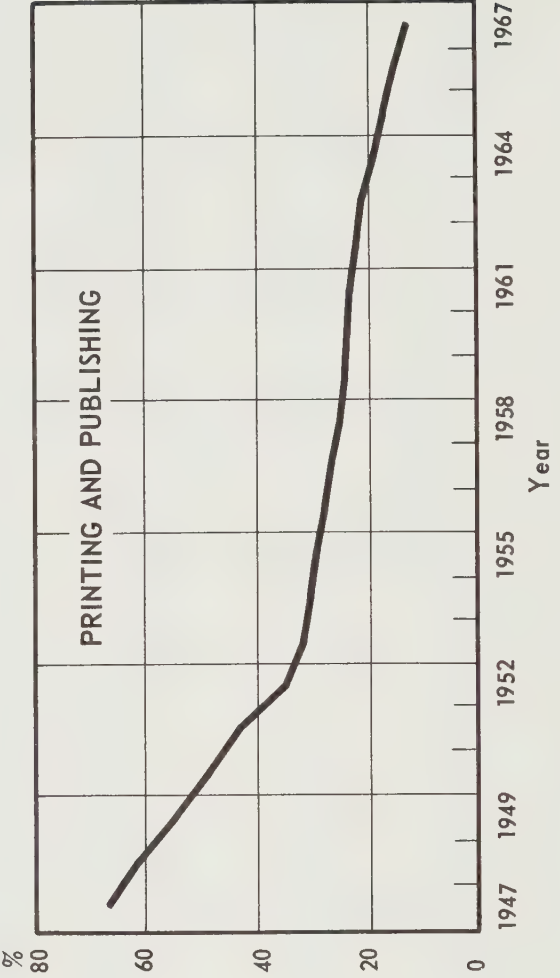
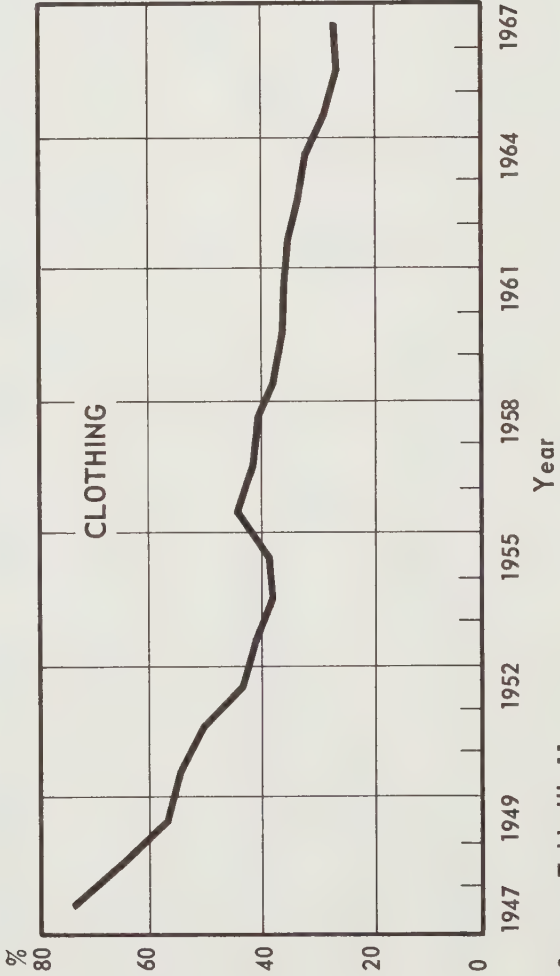
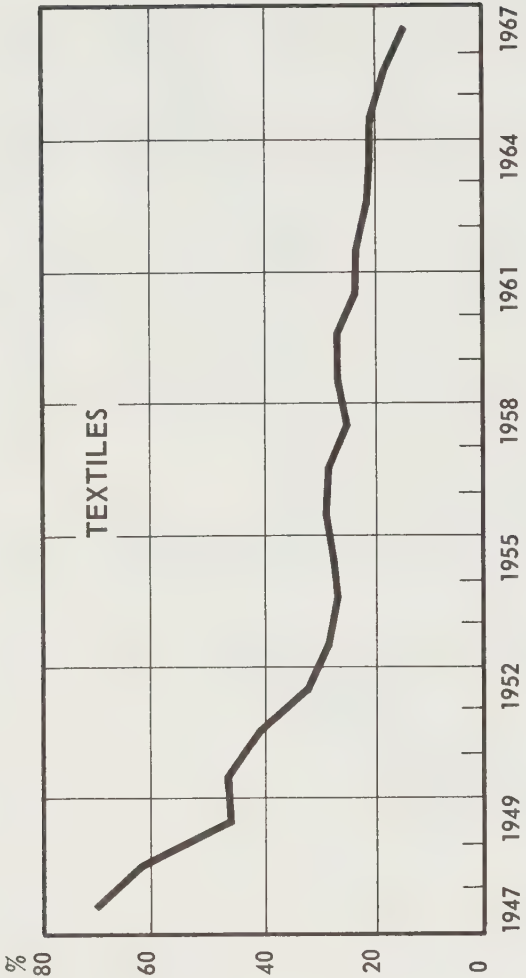
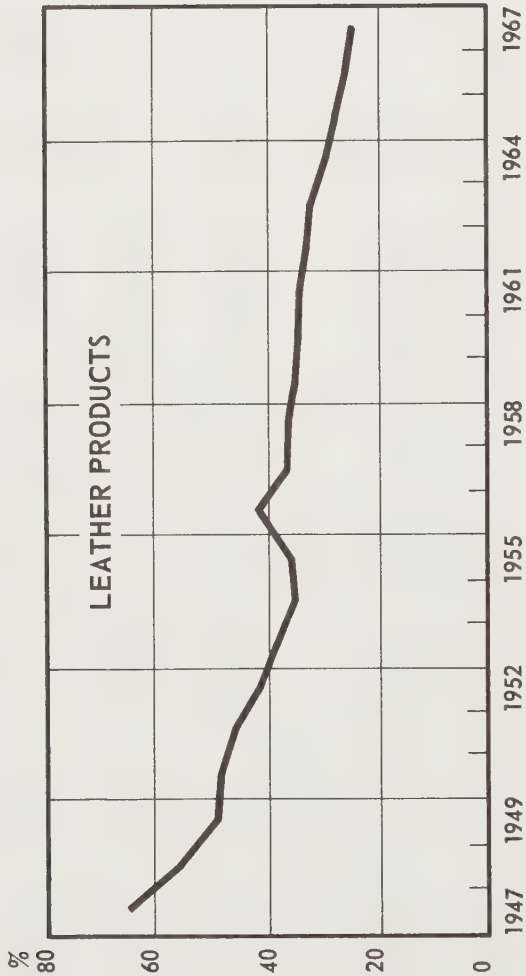
Source: Table II-7.

Chart III-5 (Continued)



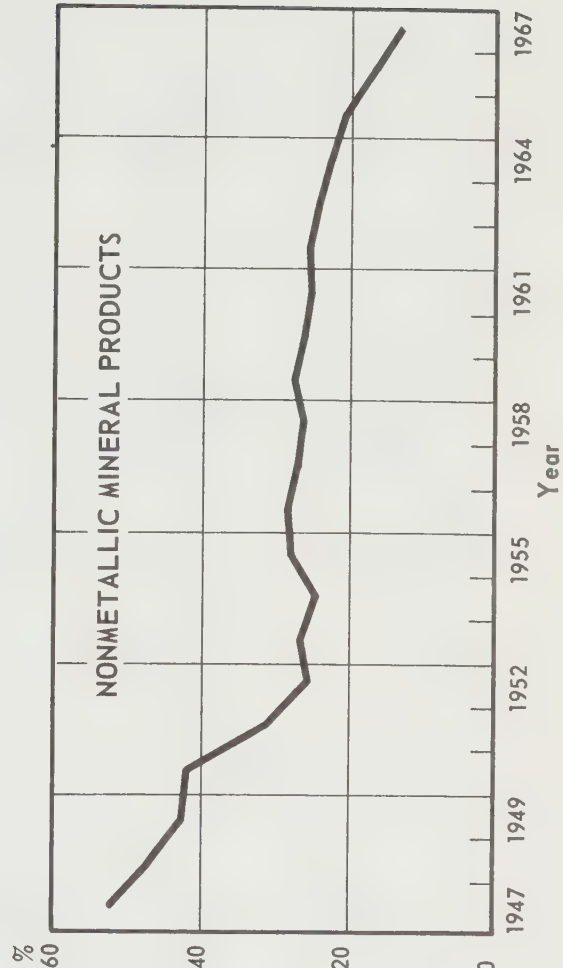
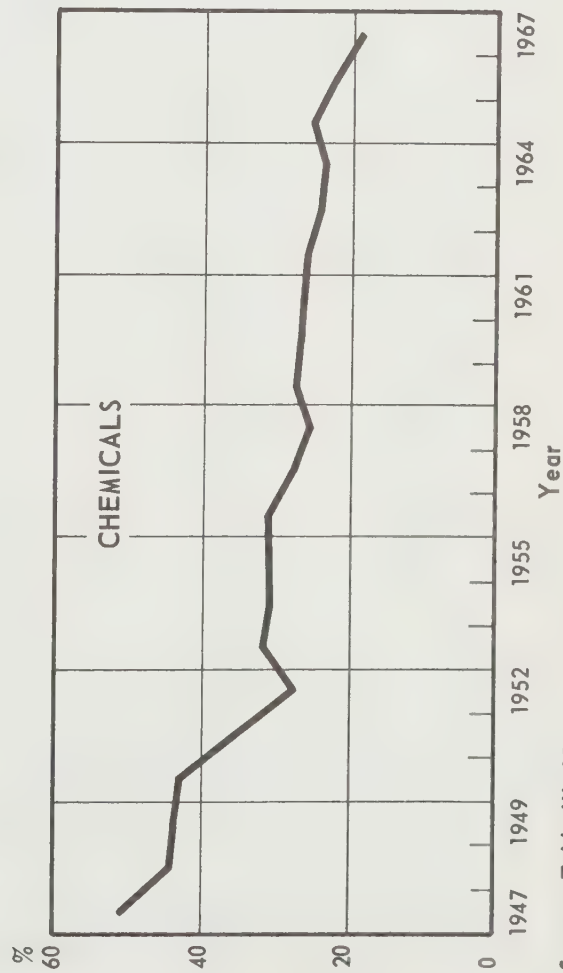
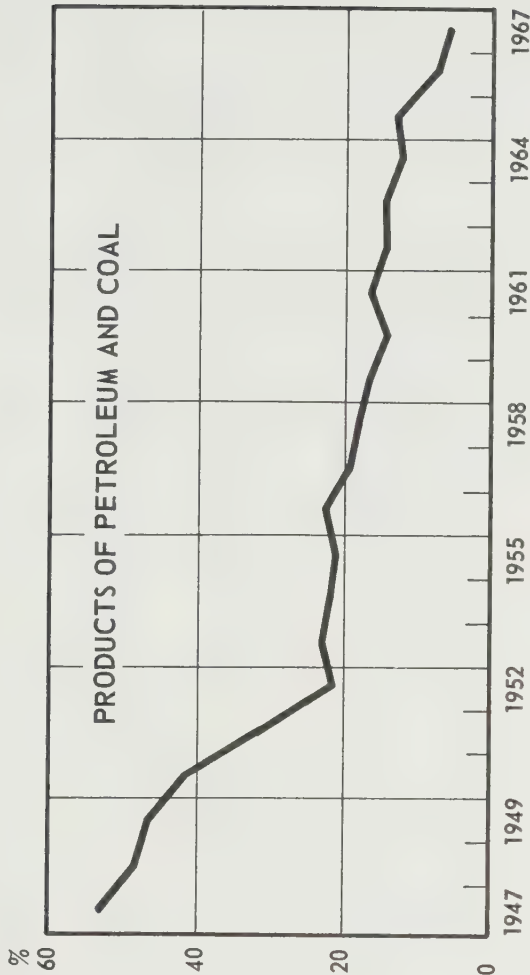
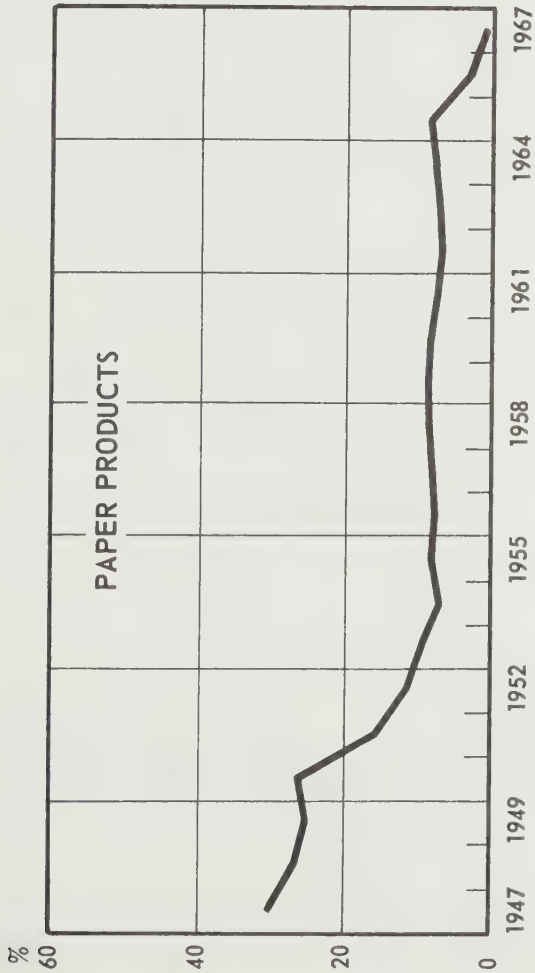
Source: Table III-11.

Chart III-5 (Continued)



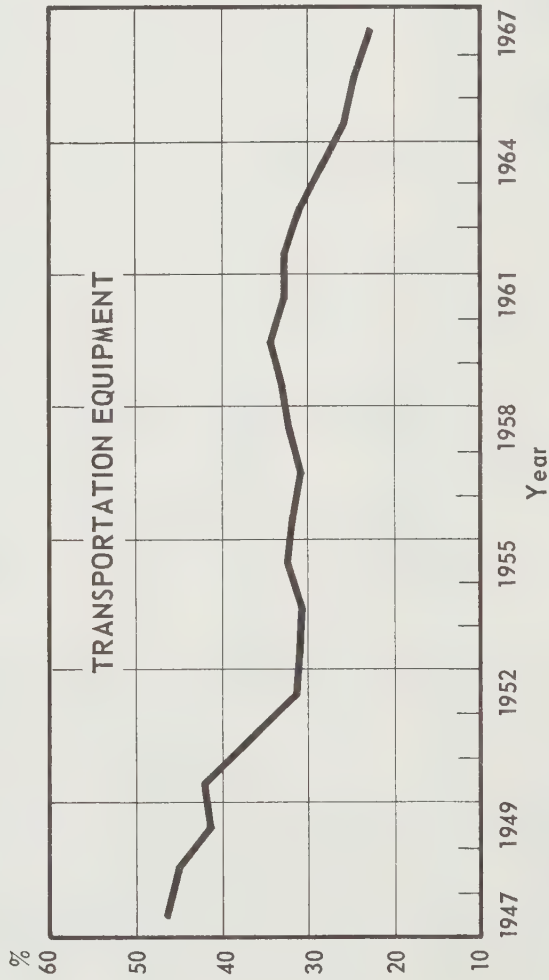
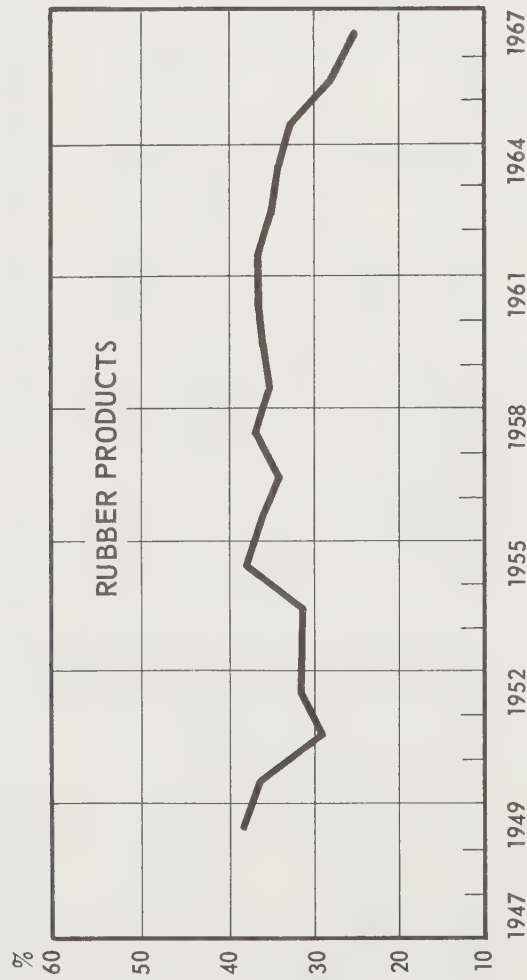
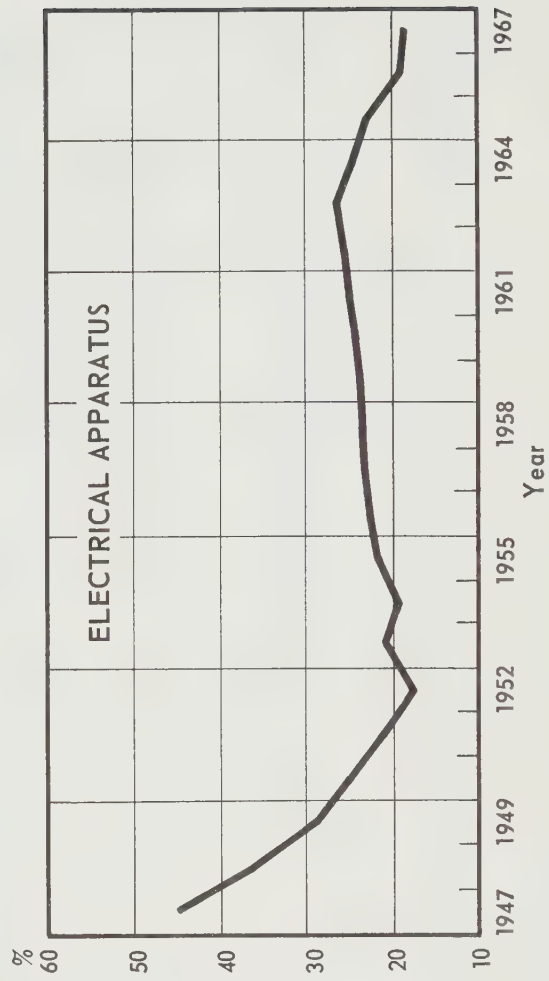
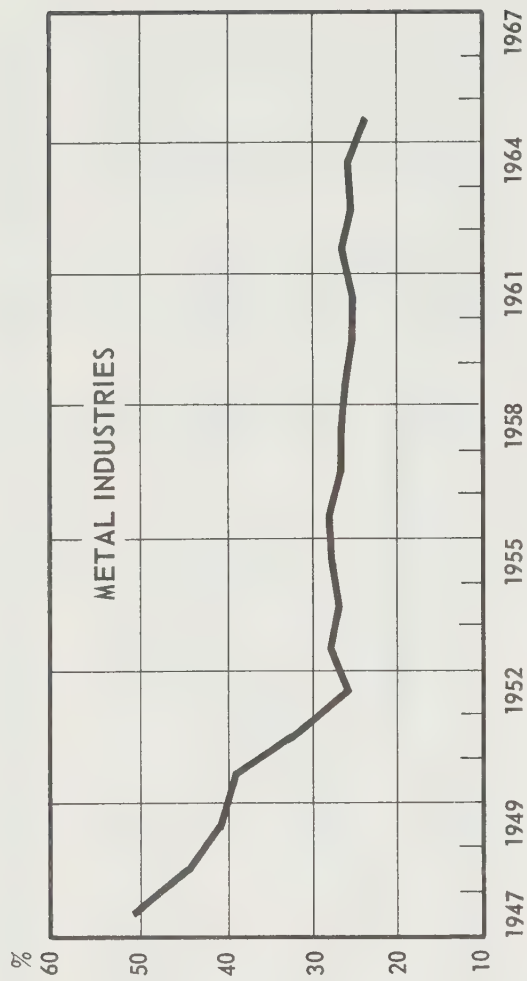
Source: Table III-11.

Chart III-5 (Continued)



Source: Table III-11.

Chart III-5 (Concluded)



Source: Table III-11.

Section III - Appendix A

Factors in the Comparison of Changes in Relative Domestic Wages and Relative International Wages¹

PART I

Notation:

W - average hourly earnings

a - average for the 15 manufacturing industries

i - the symbol for a particular one of the 15 industries

W_{us}^a	$\frac{1949}{1.38}$	$\frac{1965}{2.56}$
W_{Can}^a	.98	2.14
W_{us}^a/W_{Can}^a	1.408	1.196

Consider the relation: $1.408 = 1.196 k^a$, where k^a is the proportion of the 1949 U.S./Canada ratio to that for 1965, or

$$\frac{49W_{us}^a}{49W_{Can}^a} \times \frac{65W_{Can}^a}{65W_{us}^a}$$

A. If $k^a \neq 1$, the ratio has changed over the period.

$$k^a = \frac{1.38}{.98} \times \frac{2.14}{2.56}$$

$$= 1.408 \times .836 = 1.177$$

Alternatively, let P (the reciprocal of k^a) express the degree of change of $65W_{Can}^a$ for the two ratios to be equal, i.e.:

$$\frac{49W_{us}^a}{49W_{Can}^a} = \frac{65W_{us}^a}{(65W_{Can}^a) P}$$

$$\text{where } P = \frac{.98}{1.38} \times \frac{2.56}{2.14} = .850$$

$$\text{then, } P = \frac{1}{k^a}$$

¹ This appendix was prepared by Mr. Réal Parent of the Wages Research Division, Economics and Research Branch, Canada Department of Labour.

B. If $k^a = 1$, the 1949 U.S./Canada ratio of 1.408 would have to be the same in 1965.

Let Y represent what $65W_{Can}^a$ would have to be, with $65W_{us}^a$ as given, if $k^a = 1$.

$$\text{Thus, } \frac{49W_{us}^a}{49W_{Can}^a} = \frac{65W_{us}^a}{Y}$$

$$\frac{49W_{us}^a}{49W_{Can}^a} \times \frac{Y}{65W_{us}^a} = 1$$

$$\frac{49W_{Can}^a}{49W_{us}^a} \times 65W_{us}^a = Y$$

$$\frac{.98}{1.38} \times 2.56 = 1.818$$

$$\text{then } \frac{1.38}{.98} = \frac{2.56}{Y} = \frac{2.56}{1.818}$$

$$\text{and } 1.408 = 1.408$$

The value of P tells us that the 1965 U.S./Canada ratio was 85.0 per cent of the 1949 ratio and the value of k^a tells us that Canadian wages increased 17.7 per cent more than U.S. wages between 1949 and 1965. The value of Y tells us that 1965 Canadian wages would have had to be \$1.818 if the 1949 U.S./Canada ratio were to have been maintained, taking changes in U.S. wages as given. This \$1.818 is 85.0 per cent (i.e., P) of the actual 1965 figure; in other words, the latter is 117.7 per cent (i.e., k^a) of Y.

C. The change in the U.S./Canada ratio in one industry in relation to the all-industry change can be expressed:

$$\frac{49W_{us}^i}{49W_{Can}^i} = k^i \frac{65W_{us}^i}{65W_{Can}^i}$$

where k^i expresses by how much $\frac{65W_{us}^i}{65W_{Can}^i}$ must be changed to restore

it to the value of $\frac{49W_{us}^i}{49W_{Can}^i}$

In order to relate the change in the relation of the U.S./Canada ratio for one industry in 1949 to the all-industry ratio and the relation of the same industry's ratio in 1965 to the all-industry ratio, it is necessary to divide 1949 and 1965 values for industry i by the same term, for all industry:

$$\frac{\left[\frac{49W_{us}^i}{49W_{Can}^i} \right]}{\left[\frac{49W_{us}^a}{49W_{Can}^a} \right]} = k^i \frac{\left[\frac{65W_{us}^i}{65W_{Can}^i} \right]}{\left[\frac{65W_{us}^a}{(65W_{Can}^a)P} \right]}$$

where $\frac{65W_{us}^a}{(65W_{Can}^a)P} = \frac{49W_{us}^a}{49W_{Can}^a}$ because P expresses by how much $65W_{Can}^a$

must be changed to restore $\frac{65W_{us}^a}{65W_{Can}^a}$ to the value of $\frac{49W_{us}^a}{49W_{Can}^a}$

$$P = \frac{Y}{65W_{Can}^a} = \frac{1.818}{2.140} = 0.850$$

PART II

The relation between change (between 1949 and 1965) in an industry's relative wage position domestically and its relative U.S./Canada wage ratio is now considered. More precisely, this refers to an industry's domestic relative wage (its wage as a ratio of the unweighted 15-industry average) in 1965 as a ratio of what it was in 1949. It also refers to an industry's relative U.S./Canada ratio (that is, the ratio for that industry as a ratio for the 15-industry average) in 1965 as a ratio of its 1949 value. In the case of the domestic relative wage, we are looking at the ratio of a ratio; in the case of the relative U.S./Canada ratio, we are looking at the ratio of a ratio of a ratio! Are changes in the relative domestic wage linked mathematically with changes in the relative U.S./Canada ratio? The following analysis demonstrates that they are.

Change in the relative domestic wage is expressed as follows:

$$(1) \quad \frac{\left[\frac{65W_{us}^i}{65W_{us}^a} \right]}{\left[\frac{49W_{us}^i}{49W_{us}^a} \right]} \quad \frac{\left[\frac{65W_{Can}^i}{65W_{Can}^a} \right]}{\left[\frac{49W_{Can}^i}{49W_{Can}^a} \right]}$$

Change in the relative U.S./Canada ratio is expressed as follows:

$$(2) \quad \frac{\left[\frac{65W_{us}^i}{65W_{Can}^i} \right]}{\left[\frac{49W_{us}^i}{49W_{Can}^i} \right]} \div \frac{\left[\frac{65W_{us}^a}{65W_{Can}^a} \right]}{\left[\frac{49W_{us}^a}{49W_{Can}^a} \right]}$$

To prove that the relation between (1) and (2) is an identity, it must be shown that $\frac{(1)}{(2)} = L$ where $L = 1$.

$$(1) \quad \frac{\left[\frac{65W_{us}^i}{65W_{us}^a} \right]}{\left[\frac{49W_{us}^i}{49W_{us}^a} \right]} \times \frac{\left[\frac{49W_{Can}^i}{49W_{Can}^a} \right]}{\left[\frac{65W_{Can}^i}{65W_{Can}^a} \right]} = L$$

$$(2) \quad \frac{\left[\frac{65W_{us}^i}{65W_{Can}^i} \right]}{\left[\frac{49W_{us}^i}{49W_{us}^i} \right]} \times \frac{\left[\frac{49W_{us}^a}{49W_{Can}^a} \right]}{\left[\frac{65W_{us}^a}{65W_{Can}^a} \right]}$$

$$\frac{\left[\frac{65W_{us}^i}{65W_{us}^a} \right]}{\left[\frac{65W_{us}^i}{65W_{Can}^i} \right]} \times \frac{\left[\frac{49W_{us}^a}{49W_{us}^i} \right]}{\left[\frac{49W_{Can}^i}{49W_{us}^i} \right]} \times \frac{\left[\frac{49W_{Can}^i}{49W_{Can}^a} \right]}{\left[\frac{49W_{us}^a}{49W_{Can}^a} \right]} \times \frac{\left[\frac{65W_{Can}^a}{65W_{Can}^i} \right]}{\left[\frac{65W_{Can}^a}{65W_{us}^a} \right]} = L$$

$$\frac{\left[\frac{65W_{us}^i}{65W_{us}^a} \right]}{\left[\frac{65W_{us}^i}{65W_{Can}^i} \right]} \times \frac{\left[\frac{65W_{Can}^i}{65W_{us}^i} \right]}{\left[\frac{65W_{Can}^i}{65W_{Can}^i} \right]} \times \frac{\left[\frac{49W_{us}^a}{49W_{us}^i} \right]}{\left[\frac{49W_{us}^i}{49W_{us}^i} \right]} \times \frac{\left[\frac{49W_{Can}^i}{49W_{Can}^i} \right]}{\left[\frac{49W_{Can}^i}{49W_{Can}^i} \right]} \times \frac{\left[\frac{49W_{Can}^i}{49W_{Can}^a} \right]}{\left[\frac{49W_{us}^a}{49W_{Can}^a} \right]} \times \frac{\left[\frac{49W_{us}^a}{49W_{us}^a} \right]}{\left[\frac{49W_{us}^a}{49W_{us}^a} \right]} \times \frac{\left[\frac{65W_{Can}^a}{65W_{Can}^a} \right]}{\left[\frac{65W_{us}^a}{65W_{Can}^a} \right]} = L$$

All the terms cancel out.

Therefore $\frac{(1)}{(2)} = L = 1$

and $(1) = (2)$

Section III - Appendix B

A Mathematical Note on the Relation Between Domestic Wage Structure and Relative Employment Distribution in Canada and the United States, 1949 and 1965¹

In order to study the relation between wage structure and relative employment distribution, a measure has been devised linking changes between 1949 and 1965 in one country with changes in the other. This has been done for each of the 15 industries in Canada and the United States. It has not been possible to devise an aggregative measure for the combined effect of relative wage and employment changes although this may be done in later research.

This individual industry measure makes use of the slope of a vector oriented in the sense and direction of changes from 1949 to 1965, in terms pairwise of wage structure and relative employment data. It tells us to what extent and direction a change in wages is associated with changes in relative employment. For instance, the U.S. nonmetallic mineral products industry shows a coefficient or slope equal to 9.91, which means that between 1949 and 1965 an increase in relative wages in the industry was associated with a smaller increase in relative employment.² As another example, the Canadian chemical industry coefficient is infinity, meaning that increased relative wages were not associated with any change in relative employment.

The magnitude of the coefficients reflects the degree of proportionality of change in the two factors (dimensions Y - relative wage change - and X - relative employment change - in the accompanying charts) within zero and unity and of unity and infinity, in absolute terms (i.e., regardless of signs).

The formula for the slope of a vector is the ratio of a change in relative wage (i.e., wage structure position) on the vertical axis and of change in relative employment, on the horizontal axis, each axis being corrected for scale spread by appropriate standard deviation coefficients. Symbolically, the formula is as follows:

$$a = \frac{Y_{65} - Y_{49}}{\sqrt{Y_{65/2}} + \sqrt{Y_{49/2}}} \div \frac{X_{65} - X_{49}}{\sqrt{X_{65/2}} + \sqrt{X_{49/2}}}$$

$$= \left[\frac{Y_{65} - Y_{49}}{X_{65} - X_{49}} \right] \left[\frac{\sqrt{X_{65}} + \sqrt{X_{49}}}{\sqrt{Y_{65}} + \sqrt{Y_{49}}} \right]$$

Where: Y is the term for wages (average hourly earnings) based on an index where: the unweighted average of wages for the 15 industries equals 100, represented in the vertical axis

¹ This appendix, like Appendix A, was prepared by Mr. Réal Parent.

² A coefficient of 1.00 would mean that a change in relative wages was matched by a proportionate change in relative employment; if greater than unity, change in relative wages exceeded the change in relative employment, and conversely if it is less than unity. However, one change might be in one direction and the other in the opposite direction, or both in the same direction.

X is relative employment distribution, in percentages, on the horizontal axis

σ is the standard deviation with

$$\sigma_Y = \sqrt{\frac{\sum(Y - \bar{Y})^2}{N}}$$

$$\sigma_X = \sqrt{\frac{\sum(X - \bar{X})^2}{N}}$$

For Canada the second term of the formula, that is,

$$\frac{\sigma_X_{65} + \sigma_X_{49}}{\sigma_Y_{65} + \sigma_Y_{49}}$$

is 0.31195 and for the United States it is 0.33048.

Coefficients (Slope of Changes in Relative Wages and Relative Employment)

		<u>Canada</u>	<u>USA</u>
1	Food and beverages	- .65*	- .02
2	Tobacco products	- 17.05	- 10.02
3	Rubber products	5.92*	∞
4	Leather products	4.31*	4.29*
5	Textiles	.84*	1.25*
6	Clothing	- 2.20*	- 53.53*
7	Paper products	2.21	5.86
8	Printing and publishing	3.35	- 4.84*
9	Products of petroleum and coal	- 16.68	1.26*
10	Chemicals	∞	11.01
11	Wood products	- 5.84*	1.12*
12	Metal industries	- .62	.56
13	Transportation equipment	- .31	1.98
14	Electrical apparatus	- 2.91*	- .14*
15	Nonmetallic mineral products	1.73	9.91

NOTE: Figures with an asterisk refer to a decrease in relative wages over the period 1949-65; and figures without an asterisk refer to an increase in relative wages for the same period.

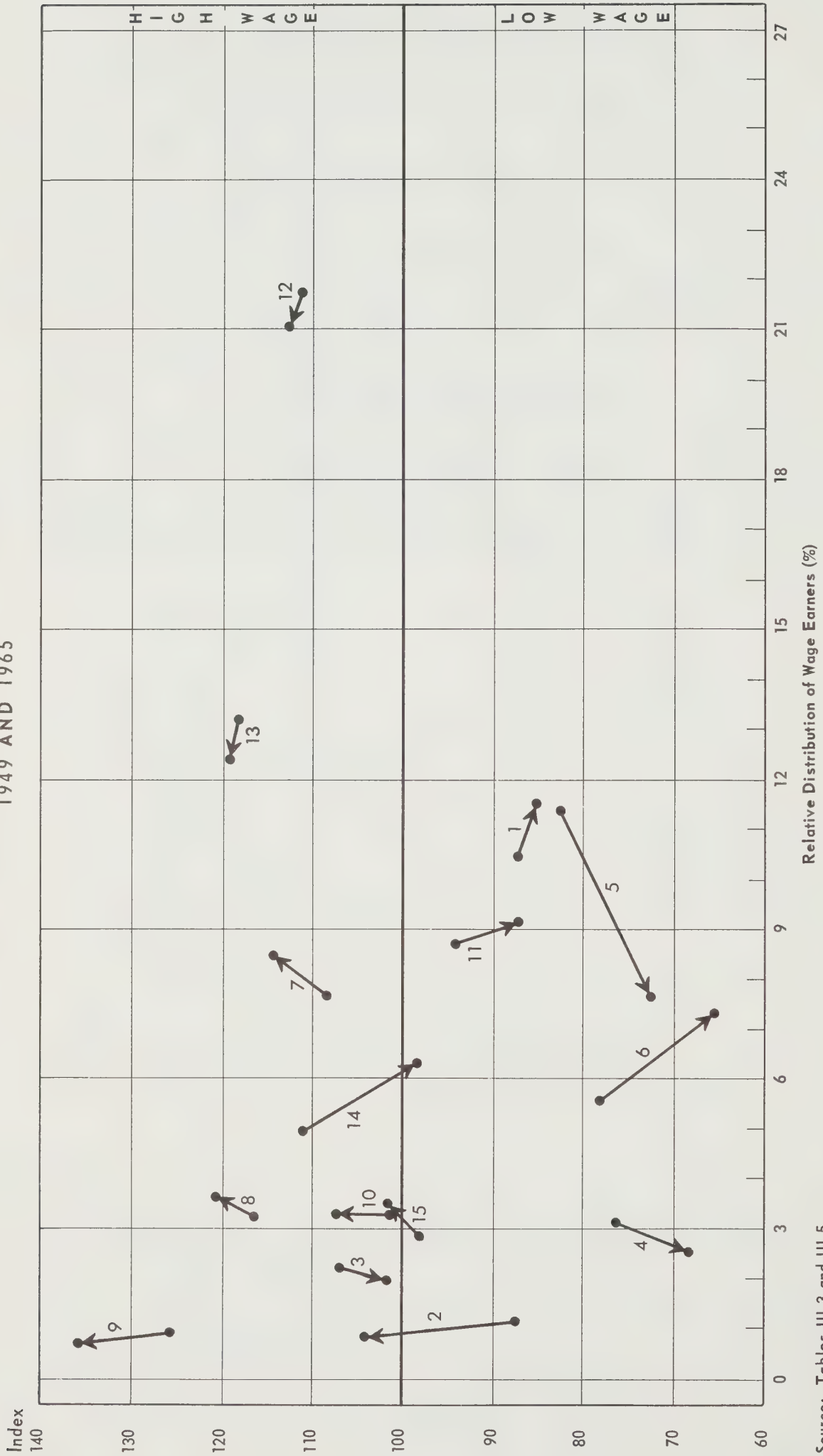
Summary

- If $a = 1$, An increase from 1949 to 1965 for a particular industry in relative wages is proportional to an increase in relative employment.
- If $a = 1^*$, A decrease in relative wages is proportional to a decrease in relative employment.
- If $a = -1$, An increase in relative wages is proportional to a decrease in relative employment.

- If $a = -1^*$, A decrease in relative wages is proportional to an increase in relative employment.
- If $a = 0$, There is no change in relative wages, whatever the change may be in relative employment.
- If $a = \infty$, There is no change in relative employment, whatever the change may be in relative wages.
- If $0 < a < 1$, An increase in relative employment is more than proportional to an increase in relative wages.
- If $1 < a < \infty$, An increase in relative employment is less than proportional to increased relative wages.
- If $0 < a < -1$, Increased relative wages is less than proportional to decreased relative employment.
- If $-1 < a < \infty$, Increased relative wages is more than proportional to decreased relative employment.

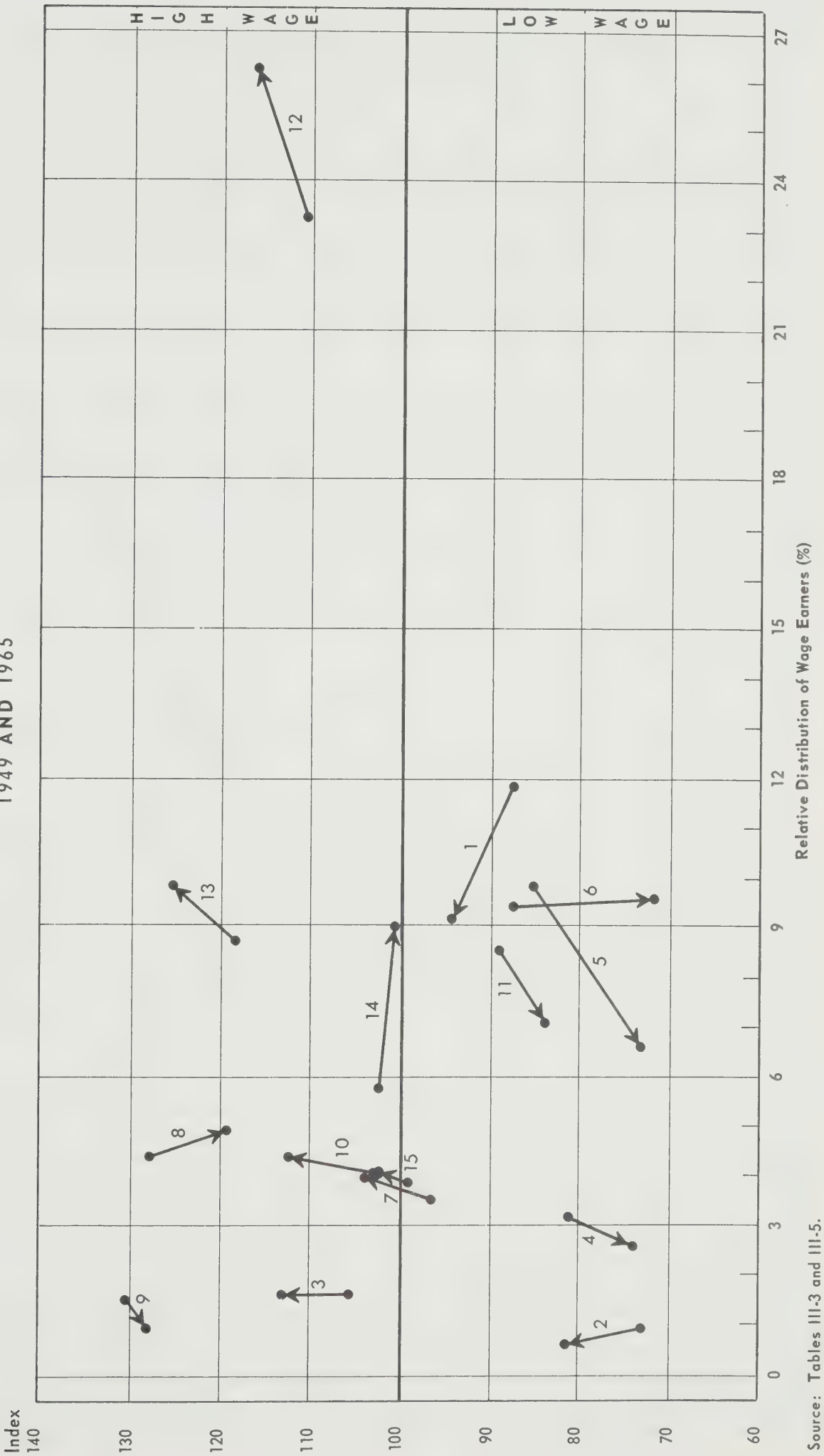
NOTE: The same reasoning applied to cases where we deal with positive or negative downward-sloping arrows.

Chart 1
MANUFACTURING INDUSTRIES, CANADA
1949 AND 1965



Source: Tables III-3 and III-5.

Chart 2
MANUFACTURING INDUSTRIES, UNITED STATES
1949 AND 1965



Source: Tables III-3 and III-5.

Section III - Appendix C

Analysis of Quartiles and the Range of Wages

The accompanying charts depict the distribution of employment over the range of wages. Employment is plotted along the abscissa (horizontal axis) and wages on the ordinate (vertical axis). The line drawn from the extreme lower left to the extreme upper right illustrates the cumulative distribution of employment if it were spread evenly along all points of the wage range. Thus the wage figure representing the upper limit of the first quarter of the range would also be the limit of the first quartile, that is, exactly 25 per cent of all employees would receive wages ranging from the minimum up to but not exceeding the first quartile limit.

Of course, employment is not evenly distributed in this manner. The upper and lower quartiles and the median are plotted on these charts and they are connected by a broken line which is also joined to the upper and lower limits of the full wage range. Just as the solid line intersecting the chart represents the cumulative distribution of employment if it were evenly spread along the range of wages, so the broken line assumes an even distribution of employment between the upper and lower limits of each quartile. This is not an accurate representation of the real distribution either, but is closer to reality than the solid line and points up where the greatest differences are to be found between actual employment distribution and "normal curve" distribution.

The upper limit of the first quartile (Q_1) for Canada in 1949 was 83.4 cents, 3.6 cents less than the upper limit of the first quarter of the wage range; in other words, 95.9 per cent of the first quarter limit. This means that the employees in the lowest wage quartile (that is, 25 per cent of all employees) received wages up to a figure that was 95.9 per cent of, or 4.1 per cent less than, the upper limit of the first 25 per cent of the range. Assuming even distribution of employment along the wage scale within each quartile (which has already been explained), that point where the broken line joining the lower quartile and the median intersects the ordinate for 87 cents (which is the upper limit of the first quarter of the range) represents, on the horizontal scale, the proportion of employment required to account for the first 25 per cent of the range of wages paid. From mathematical calculations, it can be said that this intersection is at the point representing 30.4 per cent of all employment.

The median wage of \$1.052 was considerably higher than the 99 cents constituting the midpoint of the range, a reversal of the relation between the upper limits of the first quartile and the first quarter. This is why, even though more than 25 per cent of employment (30.4 per cent in fact) accounted for the first quarter of the wage range, only half of the next 25 per cent of employment was required to account for the next 25 per cent of the range; in fact, it was 10.7 per cent. The result was that the first half of the wage range was accounted for by only 41.1 per cent of all employment. This leaves almost 59 per cent of employment to be accounted for in the second and upper half of the wage scale. This suggests that the weighted average of wages should be higher than the unweighted when so much employment is to be accounted for in the higher sector of the wage scale. In fact, we know that the weighted average (99 cents) was 1 cent higher than the unweighted. This is not a very great difference, and there are two reasons why it is not greater.

First, in the lower half of the wage range (or scale - the two words are used here interchangeably) almost 3 times as much as employment was in the first and lowest quarter, compared with the second quarter - 30.4 per cent compared with 10.7 per cent - and this would pull down the average. Second, in the upper half of the range, almost 80 per cent more employment was found in the third quarter of the wage range than in the fourth and highest quarter, 37.8 per cent, compared with 21.1 per cent. Indeed, almost as much employment was found in the third quarter as in the first two quarters combined. This concentration of employment just above the midpoint, rather than at higher wage levels, moderated any tendency for employment-weighted average wages to be greatly enhanced.

By 1965 changes in the distribution of employment in Canada tended towards a negative influence on average wages. The upper limit of the first quartile was \$1.732 and of the first quarter, \$1.785, and the first quarter of the wage range was accounted for by 28.8 per cent of all employment. This constituted a reduction of 5.3 per cent between 1949 and 1965, from 30.4 per cent to 28.8 per cent, in the proportion of employment found in the lowest quarter of the wages. By itself, this would raise the weighted average by its leaving somewhat more employment to be distributed among the other three (higher) quarters of the range. However, the difference was hardly that great and its influence depended, of course, on what happened to employment within the rest of the range. There was a sizeable increase in the proportion of employment in the second quarter, an increase of 75.7 per cent, from 10.7 to 18.8 per cent, accompanied by a reduction in the third quarter (36.4 compared with 37.8) and a 24.2-per-cent reduction in the top quarter, from 21.1 to 16.0 per cent. The result was that 47.6 per cent of employment was now found in the lower half of the range, compared with 41.1 per cent in 1949, and there was reduced employment at both extremes of the wage scale, but a relatively greater reduction at the higher extreme.

To sum up the Canadian situation: between 1949 and 1965 employment shifted towards the middle 50 per cent of the wage range with a large increase in employment in the second quarter. This trend was marked by a more substantial reduction of employment in the top quarter than in the bottom quarter. The net result was that in spite of a marked widening of the range of wages from minimum to maximum, the 15-industry average of wages, when weighted by employment, did not increase as much as the unweighted average. The foregoing analysis, along with the accompanying charts, demonstrate the point made earlier in the text that there was some shift of Canadian employment towards relatively lower wages. This is further corroborated in the charts showing distribution of employment in 1949 and 1965 according to wages shown in Table III-1 and employment weights in Table III-5. However, this point must not be exaggerated; it must be remembered that in both years more employment was found in the upper half of the wage range than in the lower. But the difference did diminish, from 58.9 per cent in 1949 to 52.4 in 1965. This is also shown by the fact that the 1949 median wage was 6.3 per cent higher than the midpoint figure, but the 1965 median was only 1.6 per cent higher.

In the United States in 1949 the upper limit of the first quartile (Q_1) was, at \$1.208, almost identical with the upper limit of the first quarter of the wage range, at \$1.20, or to put it another way, the first quarter accounted for 24.1 per cent of all employment which is almost the same as the 25 per cent it would be if the quartile and the quarter were identical. The second quarter accounted for 30.4 per cent of all employment, contrasting sharply with the Canadian situation where, in 1949, the second quarter accounted for only 18.8 per cent. Thus, the

lower half of the U.S. wage range accounted for 54.5 per cent of employment, compared with only 41.1 per cent in Canada. Third quarter U.S. employment was 32.5 per cent compared with 37.8 per cent in Canada, and fourth quarter, 13.0 per cent, compared with 21.1 per cent in Canada. Not only was more U.S. employment in the lower half of the wage range than in Canada but there was a smaller concentration in the highest quarter; this was offset somewhat by a greater Canadian concentration in the lowest quarter, but the difference was not as marked as with the top quarter.

By 1965 the U.S. pattern of employment changed considerably, most notably in a greater concentration of employment in the upper half of the wage range. Employment in the upper half increased from 45.5 per cent in 1949 to 54.5 per cent in 1965, and this was all accounted for by a more than doubling of the proportion of employment found in the top quarter, from 13.0 per cent to 26.9 per cent; in fact, employment in the third quarter dropped from 32.5 per cent to 27.6 per cent.

This appendix concludes with tabulations of some of the data used in the above analysis that do not appear in the series of tables relating to Section III.

Ratios* of the quartiles to upper limits
of the quarters of the wage range

	First Quartile	Median	Third Quartile
Canada 1949	95.9	106.3	97.8
1965	97.0	101.6	95.1
U.S. 1949	100.7	97.1	93.6
1965	97.8	103.1	101.1
Change, 1965/1949			
Canada	101.1	95.5	97.2
U.S.	97.1	106.2	108.0

* $\frac{(Q)}{(q)}100$ where Q is the quartile (the median being in effect the second quartile) and q is the quarter upper limit.

Proportions of total employment
found in each quarter

	I	II	III	IV
	%	%	%	%
Canada 1949	30.4	10.7	37.8	21.1
1965	28.8	18.8	36.4	16.0
U.S. 1949	24.1	30.4	32.5	13.0
1965	27.8	17.7	27.6	26.9
Change, 1949 to 1965				
Canada	-5.2	+75.7	3.7	-24.2
U.S.	+15.4	-41.8	-15.1	+106.9

Cumulative proportions of total
employment in each quarter*

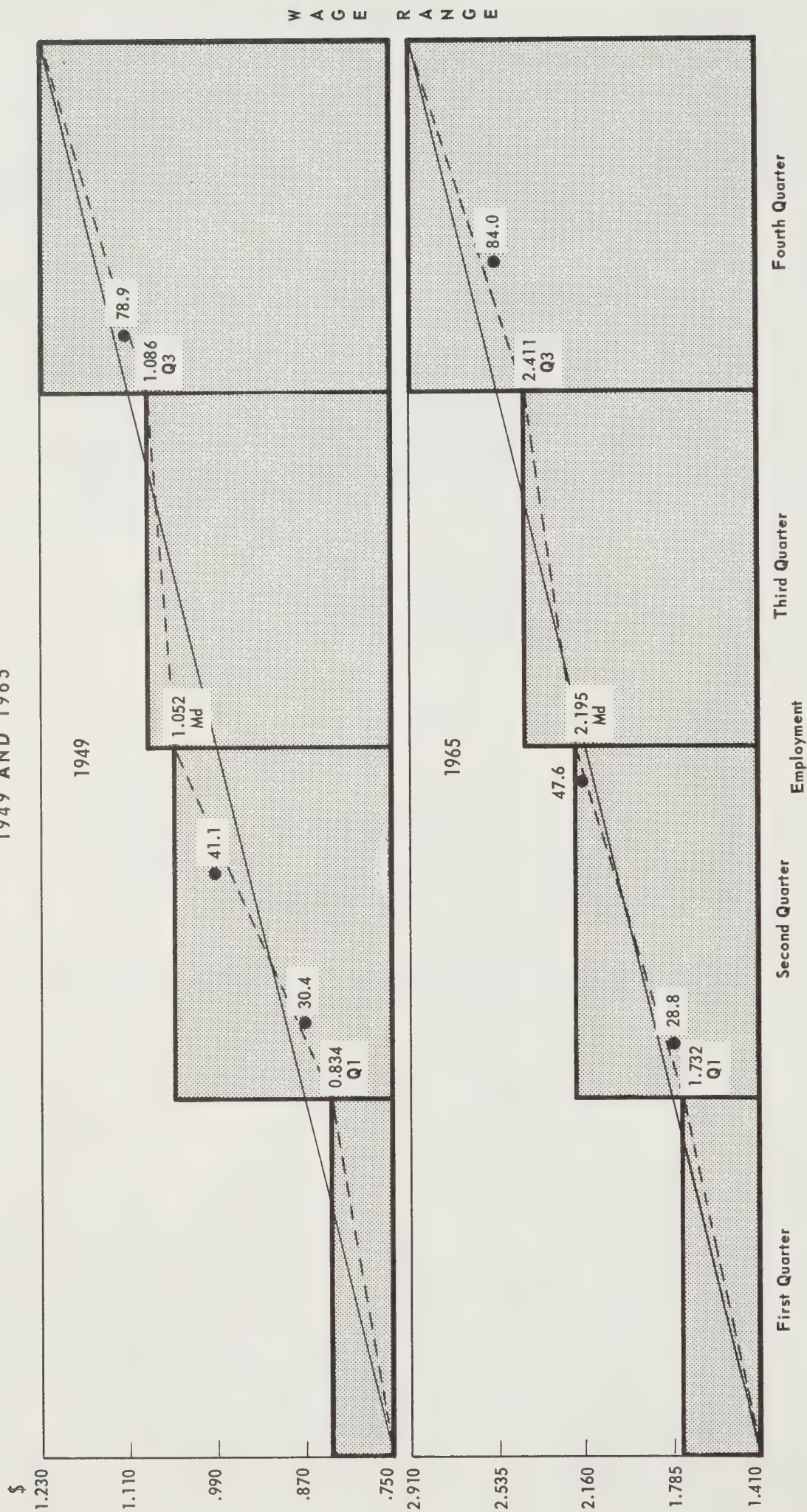
	I	II	III	IV
Canada 1949	30.4	41.1	78.9	100.0
1965	28.8	47.6	84.0	100.0
U.S. 1949	24.1	54.5	87.0	100.0
1965	27.8	45.5	73.1	100.0

* Computed as follows:

$$\text{For I, } \left(\frac{125}{(Q_1/q_1)} \right) - 100$$

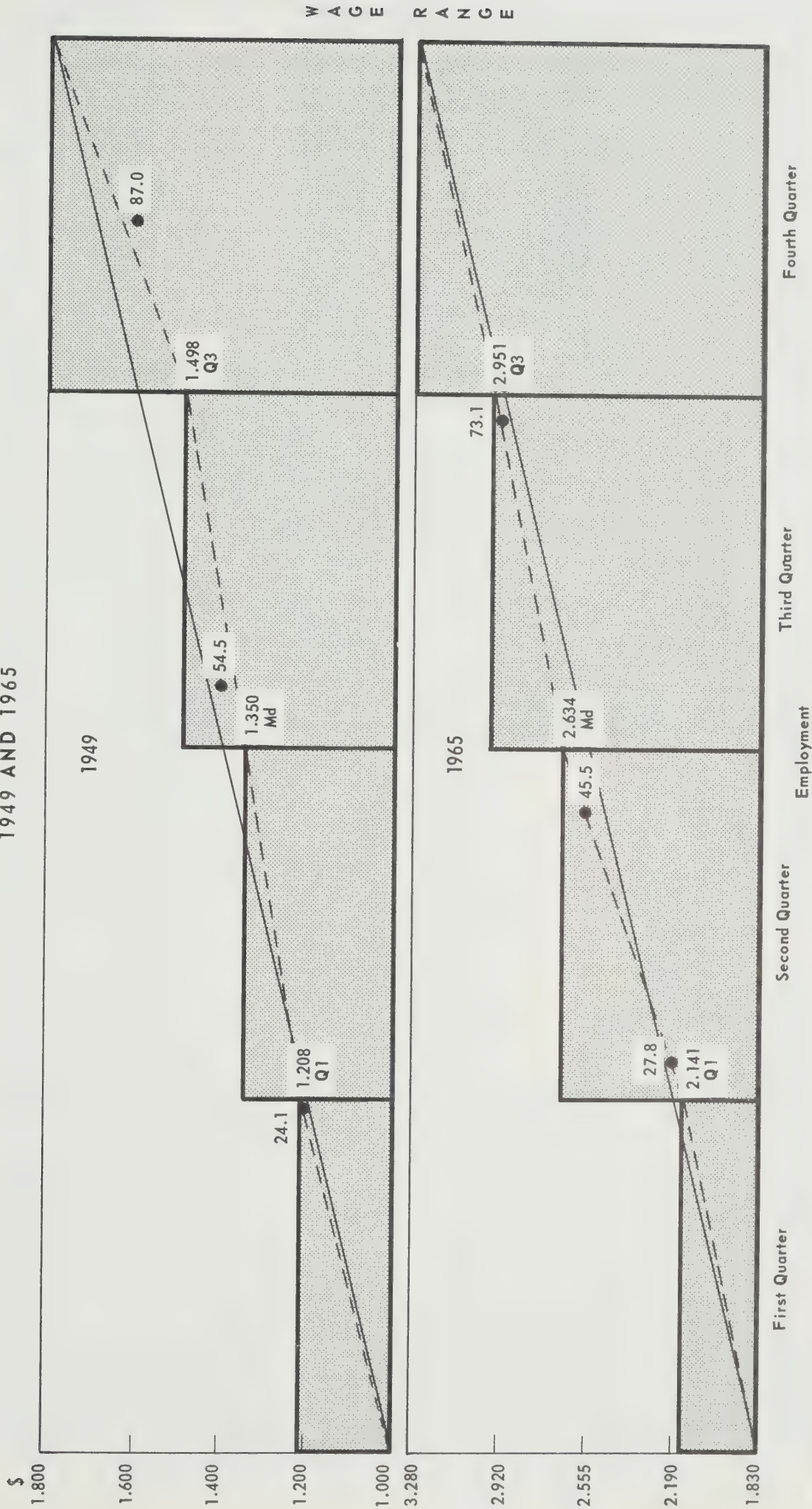
For II the numerator is 150, and for III, it is 175.
These computations were made first and the specific
proportions for each quarter were obtained by subtraction.

Chart 1
DISTRIBUTION OF EMPLOYMENT, CANADA
1949 AND 1965



Note: ● On the horizontal scale this represents the cumulative proportion of total employment in each quarter of the wage range; the latter is depicted by the vertical scale. For the computation of these values see the table on page 107.

Chart 2
DISTRIBUTION OF EMPLOYMENT, UNITED STATES
1949 AND 1965



Note: ● On the horizontal scale this represents the cumulative proportion of total employment in each quarter of the wage range; the latter is depicted by the vertical scale. For the computation of these values see the table on page 107.

Chart 3
PERCENTAGE OF TOTAL EMPLOYMENT IN EACH QUARTER OF THE WAGE RANGE
CANADA, 1949 AND 1965

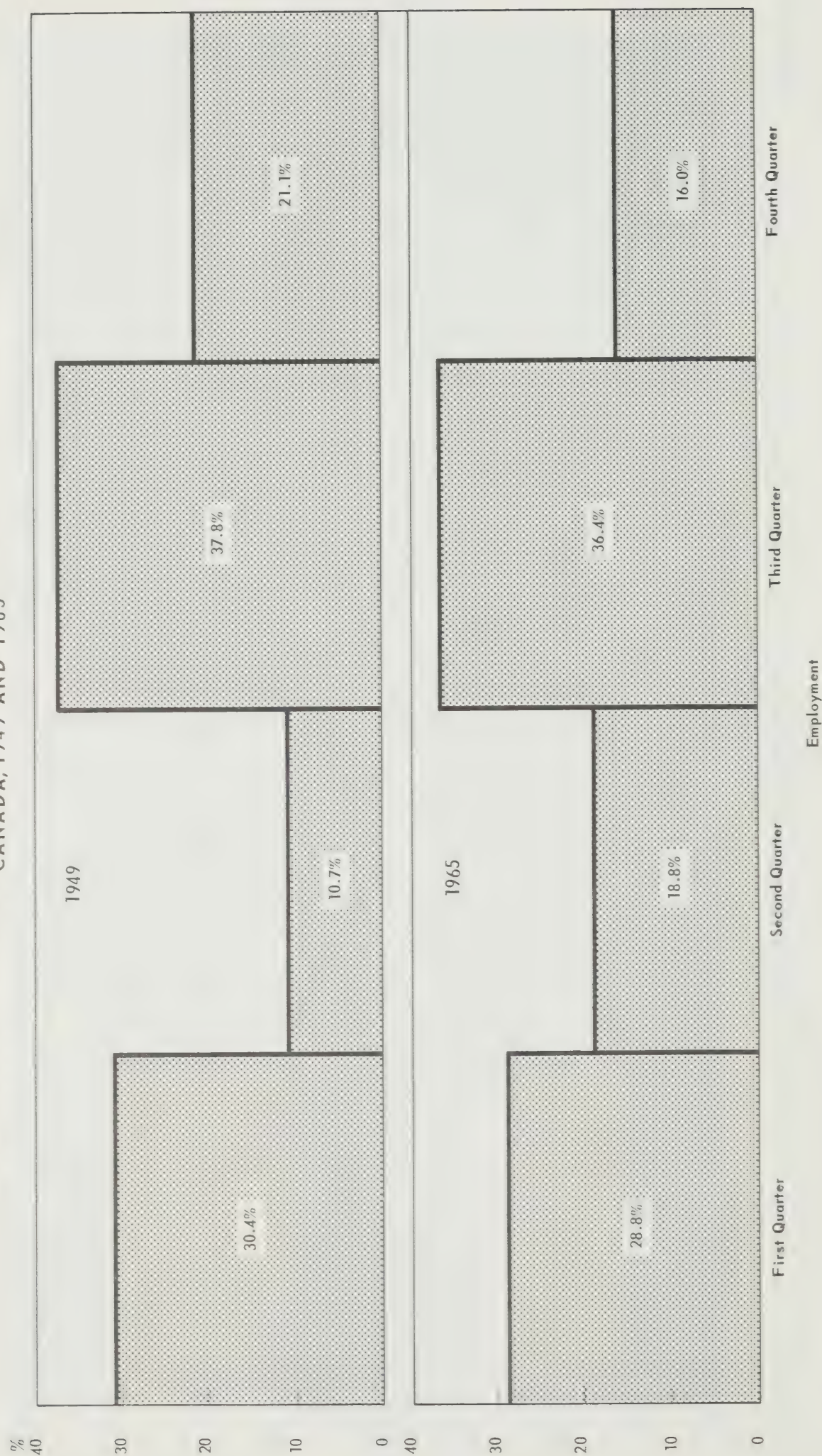


Chart 4
PERCENTAGE OF TOTAL EMPLOYMENT IN EACH QUARTER OF THE WAGE RANGE
UNITED STATES, 1949 AND 1965

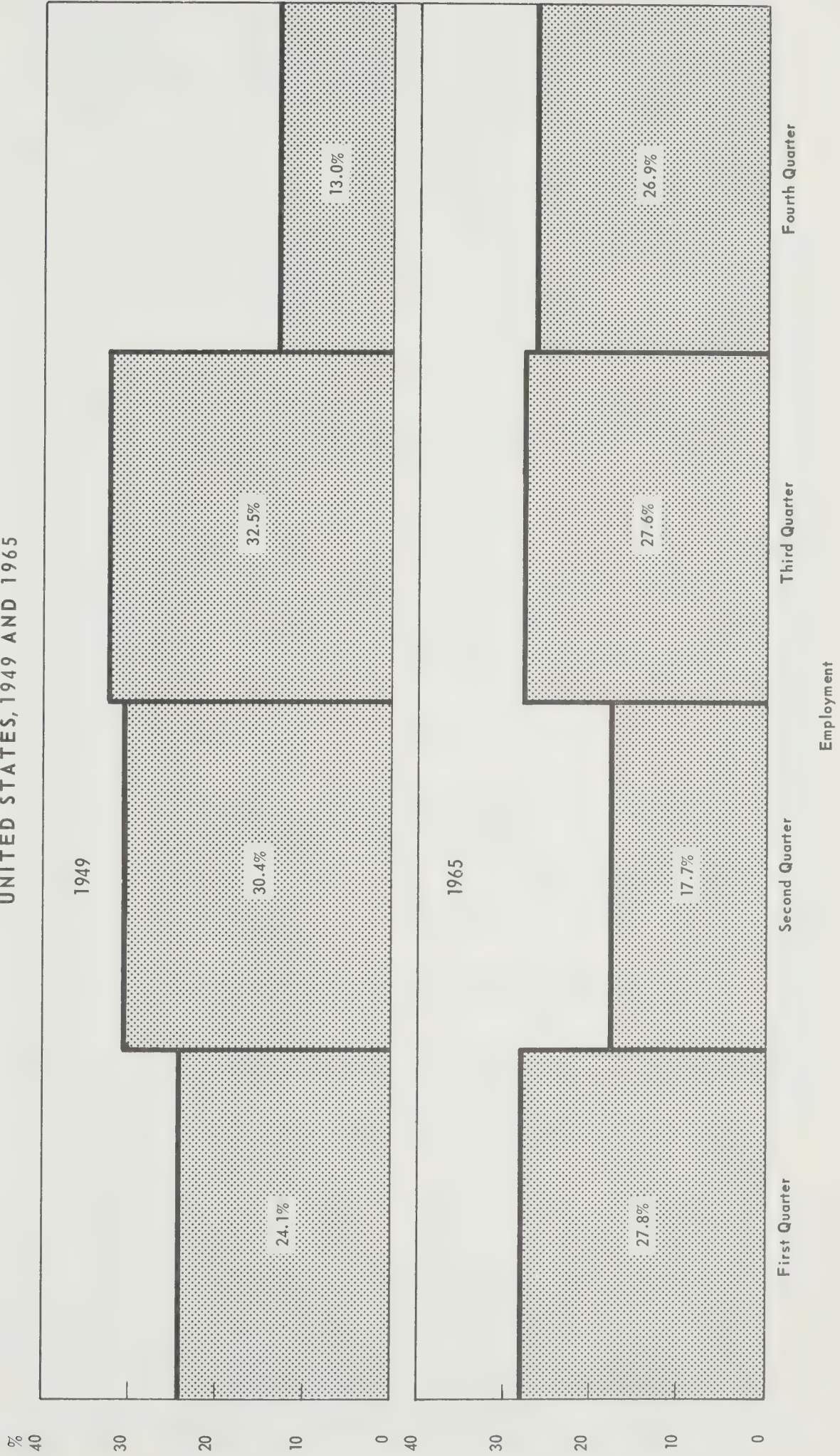


Table III-1
Hourly and Weekly Earnings, in Domestic Dollars, and Weekly Hours of Work
in Manufacturing Industries, Canada-United States, 1949 and 1965

Industry Group	Average Hourly Earnings		Average Hourly Earnings		Average Weekly Earnings		Average Weekly Earnings		Average Weekly Hours	
	1949	1949	1965	1965	1949	1949	1965	1965	1949	1965
	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.
Food and beverages	.86	1.21	1.83	2.43	36.46	50.53	74.41	99.87	42.4	41.9
Tobacco products	.86	1.00	2.23	2.09	36.76	37.26	83.81	79.21	42.6	37.3
Rubber products ^{1/}	1.05	1.46	2.17	2.90	42.78	55.87	90.59	122.63	40.9	38.4
Leather products	.75	1.12	1.46	1.88	30.23	41.07	57.56	71.82	40.2	36.6
Textiles ^{2/}	.81	1.18	1.55	1.87	34.59	44.41	64.95	78.17	42.0	37.6
Clothing ^{2/}	.77	1.21	1.41	1.83	29.41	42.80	53.72	66.61	37.3	35.4
Paper products	1.06	1.33	2.45	2.65	49.32	55.42	102.72	114.22	46.4	41.7
Printing and publishing	1.14	1.77	2.58	3.06	46.12	68.64	100.83	118.12	40.6	38.8
Products of petroleum and coal	1.23	1.80	2.91	3.28	50.63	72.46	122.36	138.42	41.3	40.3
Chemicals	.99	1.42	2.31	2.89	43.02	57.67	94.70	121.09	43.5	40.7
Wood products ^{3/}	.93	1.23	1.87	2.15	38.41	48.40	77.37	88.32	41.3	39.4
Metal industries ^{4/}	1.09	1.53	2.41	2.98	46.54	59.75	100.17	126.34	42.9	39.2
Transportation equipment ^{5/}	1.16	1.64	2.55	3.21	48.95	65.10	106.58	137.71	42.2	39.6
(Motor vehicles and parts) ^{6/}	1.23	1.70	2.70	3.34	50.27	67.33	115.37	147.63	40.8	39.7
Electrical apparatus	1.09	1.41	2.10	2.58	44.96	55.77	86.06	105.78	41.1	39.5
Nonmetallic mineral products ^{7/}	.96	1.37	2.18	2.62	43.19	54.31	94.59	110.04	44.9	39.7

^{1/}For the U.S. the data were obtained by subtracting earnings for miscellaneous plastics products from earnings for rubber and miscellaneous plastics products so as to produce comparability with Canada where plastics products are not included with rubber products. Because 1949 data were not available for miscellaneous plastics in the U.S. an estimate was made on the basis of the relation of earnings in plastics to earnings for rubber products in 1951, the first year in which data appeared separately. Removing the earnings in plastics raised earnings for rubber products 3.2%; the rubber earnings figure for 1949 was raised by this percentage.

^{2/}Canadian data for textiles include knit goods, transferred from clothing, in order to be comparable with the United States.

^{3/}For the U.S. the figures are based on combined data for lumber and wood products (except furniture) and furniture and fixtures.

^{4/}For Canada the figures are based on combined data for iron and steel products and nonferrous metal products; for the U.S., data were combined for ordnance, primary metal, fabricated metal products, and machinery.

^{5/}This industry includes motor vehicles and parts for which separate earnings data are shown below. Motor vehicles and parts are shown separately because of the special interest in this industry.

^{6/}The parts industry had to be included with motor vehicles, proper, because data for motor vehicles were not published separately in the U.S. before 1958.

^{7/}This is the Canadian title for the industry and is comparable with stone, clay and glass products in the U.S.

Sources: For Canada, 1949, D.B.S., Review of Manhours and Hourly Earnings, (Cat. No. 72-202), for 1965, data computed by Department of Labour from D.B.S. ledgers.

For United States, U.S. Bureau of Labor Statistics, Employment and Earnings Statistics for the United States, 1909-67.

Table III-2A

Ratios of United States to Canadian Hourly and Weekly Earnings,
Manufacturing Industries, 1949 and 1965

Industry Group ^{1/}	Average Hourly Earnings			Average Weekly Earnings		
	U.S./Canada 1949	U.S./Canada 1965	Change from 1949 to 1965	U.S./Canada 1949	U.S./Canada 1965	Change from 1949 to 1965
Food and beverages	140.7	132.8	% -5.6	138.6	134.2	% -3.2
Tobacco products	116.3	93.7	-19.4	101.4	94.5	-6.8
Rubber products	139.0	133.6	-3.9	130.6	135.4	+3.7
Leather products	149.3	128.8	-13.7	135.9	124.8	-8.2
Textiles	145.7	120.6	-17.2	128.4	120.4	-6.2
Clothing	157.1	129.8	-17.4	145.5	124.0	-14.8
Paper products	125.5	108.2	-13.8	112.4	111.2	-1.1
Printing and publishing	155.3	118.6	-23.6	148.8	117.1	-21.3
Products of petroleum and coal	146.3	112.7	-23.0	143.1	113.1	-21.0
Chemicals	143.4	125.1	-12.8	134.1	127.9	-4.6
Wood products	132.3	115.0	-13.1	126.0	114.2	-9.4
Metal industries	140.4	123.7	-11.9	128.4	126.1	-1.8
Transportation equipment	141.4	125.9	-11.0	133.0	129.2	-2.9
(Motor vehicles and parts)	138.2	123.7	-10.5	124.0	128.0	+3.2
Electrical apparatus	129.4	122.9	-5.0	124.0	122.9	-.9
Nonmetallic mineral products	142.7	120.2	-15.8	125.7	116.3	-7.5

Averages (unweighted) for the 15 industries: ^{2/} Change 1949 to 1965.

Average Hourly Earnings U.S./Canada - 1949 - 140.8)
1965 - 119.6) -15.1%

Average Weekly Earnings U.S./Canada - 1949 - 130.1)
1965 - 120.2) - 7.6%

^{1/} How these groups were set up to establish comparability between Canada and the United States is described in the footnotes to Table III-1.

^{2/} This table shows 16 industry groups but, as explained in Table III-1, motor vehicles and parts is part of the broader transportation equipment group, so it is not treated separately in computation of averages.

Source: Ratios are based on absolute values in Table III-1.

Table III-2B

Percentage Differences Between United States
and Canadian Hourly and Weekly Earnings,
Manufacturing Industries, 1949 and 1965

Industry Group ^{1/}	Average Hourly Earnings		Average Weekly Earnings		Change from 1949 to 1965 %
	U.S./Canada 1949 %	U.S./Canada 1965 %	U.S./Canada 1949 %	U.S./Canada 1965 %	
Food and beverages	40.7	32.8	38.6	34.2	-11.4
Tobacco products	16.3	-6.3	1.4	-5.5	-492.9
Rubber products	39.0	33.6	30.6	35.4	+15.7
Leather products	49.3	28.8	35.9	24.8	-30.9
Textiles	45.7	20.6	28.3	20.4	-27.9
Clothing	57.1	29.8	45.5	24.0	-47.3
Paper products	25.5	8.2	12.4	11.2	-9.7
Printing and publishing	55.3	18.6	48.8	17.1	-65.0
Products of petroleum and coal	46.3	12.7	43.1	13.1	-69.6
Chemicals	43.4	25.1	34.1	27.9	-18.2
Wood products	32.3	15.0	26.0	14.2	-45.4
Metal industries	40.4	23.7	28.4	26.1	-8.1
Transportation equipment	41.4	25.9	33.0	29.2	-11.5
(Motor vehicles and parts)	38.2	23.7	24.0	28.0	+16.7
Electrical apparatus	29.4	22.9	24.0	22.9	-4.6
Nonmetallic mineral products	42.7	20.2	25.7	16.3	-36.6

Averages (unweighted) for the 15 industries: ^{2/}

Change 1949 to 1965

Average Hourly Earnings U.S./Canada - 1949 - 40.8)
1965 - 19.6)

-52.0

Average Weekly Earnings U.S./Canada - 1949 - 30.1)
1965 - 30.4)

-32.7

^{1/}How these groups were set up to establish comparability between Canada and the United States is described in the footnotes to Table III-1.

^{2/}This table shows 16 industry groups but, as explained in Table III-1, motor vehicles and parts is part of the broader transportation equipment group, so it is not treated separately in computation of averages.

Source: Percentage differences are based on absolute values in Table III-1.

Table III-3

Wage Structure,^{1/} Manufacturing Industries,
Canada-United States, 1949 and 1965

Industry Group ^{2/}	Canada		United States	
	1949	1965	1949	1965
Food and beverages	87.8	85.5	87.7	94.9
Tobacco products	87.8	104.2	72.5	81.6
Rubber products	107.1	101.4	105.8	113.3
Leather products	76.5	68.2	81.2	73.4
Textiles	82.7	72.4	85.5	73.0
Clothing	78.6	65.9	87.7	71.5
Paper products	108.1	114.5	96.4	103.5
Printing and publishing	116.3	120.6	128.3	119.5
Products of petroleum and coal	125.5	136.0	130.4	128.1
Chemicals	101.0	107.9	102.9	112.9
Wood products	94.9	87.4	89.1	84.0
Metal industries	111.2	112.6	110.9	116.4
Transportation equipment	118.4	119.2	118.8	125.4
Electrical apparatus	111.2	98.1	102.2	100.8
Nonmetallic mineral products	98.0	101.9	99.3	102.3
Unweighted average of earnings in the 15 industries	\$.98	\$2.14	\$1.38	\$2.56

^{1/} Average hourly earnings in each industry expressed as a ratio of the unweighted average for all the industries (that is, the unweighted average equals 100).

^{2/} See footnote ^{1/}, Table III-2.

Sources: Absolute values in Table III-1.

Table III-4A

Increases in Hourly Earnings, 1949 to 1965,
Manufacturing Industries, Canada-United States

Industry Group ^{1/}	Index ^{2/}		Increases Compared ^{3/}
	Canada	U.S.	
Food and beverages	212.8	200.8	106.0
Tobacco products	259.3	209.0	124.1
Rubber products	206.7	198.6	104.1
Leather products	194.7	167.9	116.0
Textiles	191.4	158.5	120.8
Clothing	183.1	151.2	121.1
Paper products	231.1	199.2	116.0
Printing and publishing	226.3	172.9	130.9
Products of petroleum and coal	236.6	182.2	129.9
Chemicals	233.3	203.5	114.6
Wood products	201.1	174.8	115.0
Metal industries	221.1	194.8	113.5
Transportation equipment	219.8	195.7	112.3
Electrical apparatus	192.7	183.0	105.3
Nonmetallic mineral products	227.1	191.2	118.8
Average index (unweighted) ^{4/}	218.4	185.5	117.7

^{1/}See footnote 1, Table III-2.

^{2/}Average hourly earnings in 1965 expressed as an index of earnings in 1949.

^{3/}The Canadian index divided by the U.S. index, the result multiplied by 100.

^{4/}The Canadian index is the ratio of the 1965 unweighted average of \$2.14 to the 1949 average of \$0.98, and the U.S. index is the ratio of \$2.56 for 1965 to \$1.38 for 1949.

Source: Absolute values in Table III-1.

Table III-4B

Percentage Increases in Hourly Earnings, 1949 to 1965,
Manufacturing Industries, Canada-United States

Industry Group ^{1/}	Canada	U.S.	Increases Compared ^{2/}
	%	%	%
Food and beverages	112.8	100.8	111.9
Tobacco products	159.3	109.0	146.1
Rubber products	106.7	98.6	108.2
Leather products	194.7	67.9	139.5
Textiles	91.4	58.5	156.2
Clothing	83.1	51.2	162.3
Paper products	131.1	99.2	132.2
Printing and publishing	126.3	72.9	173.3
Products of petroleum and coal	136.6	82.2	166.2
Chemicals	133.3	103.5	128.8
Wood products	101.1	74.8	135.2
Metal industries	121.1	94.8	127.7
Transportation equipment	119.8	95.7	125.2
Electrical apparatus	92.7	83.0	111.7
Nonmetallic mineral products	127.1	91.2	139.4
Average increase (unweighted) ^{3/}	118.4	85.5	138.5

^{1/}See footnote 1, Table III-2.

^{2/}The extent to which the Canadian increase exceeds the U.S. increase.

^{3/}These figures represent the extent to which the average of the 1965 absolute values exceeds the average values for 1949.

Source: Absolute values in Table III-1.

Table III-5

Employment and Relative Distribution of Wage Earners,
Manufacturing Industries, Canada-United States, 1949 and 1965

Industry Group ^{1/}	Canada			United States		
	1949		1965	1949		1965
	Numbers	Distribution	Numbers	Distribution	Numbers	Distribution
Food and beverages	78,832	10.4	111,559	11.5	1,341,000	11.9
Tobacco products	8,280	1.1	7,425	.8	101,000	.9
Rubber products	16,676	2.2	17,947	1.9	175,150	1.6
Leather products	23,304	3.1	24,617	2.5	348,000	3.1
Textiles	86,194	11.4	71,387	7.6	1,103,000	9.8
Clothing	41,342	5.5	74,019	7.3	1,053,000	9.4
Paper products	57,685	7.6	82,003	8.5	390,000	3.5
Printing and publishing	24,352	3.2	34,592	3.6	488,000	4.3
Products of petroleum and coal	6,520	.9	6,768	.7	169,000	1.5
Chemicals	24,842	3.3	32,138	3.3	449,000	4.0
Wood products	65,837	8.7	87,901	9.1	954,000	8.5
Metal industries	164,165	21.7	203,957	21.0	2,602,000	23.2
Transportation equipment	99,830	13.2	120,596	12.4	976,000	8.7
Electrical apparatus	36,831	4.9	61,560	6.3	638,000	5.7
Nonmetallic mineral products	21,124	2.8	33,905	3.5	443,000	3.9
Total	755,814	100.0%	970,374	100.0%	11,230,150	100.0%
					12,693,100	100.0%

^{1/} See footnote 1, Table III-2.

Sources: For Canada, 1949 data are from D.B.S., Annual Review of Employment and Payrolls, (Cat. No. 72-201) and 1965 data were computed by the Department of Labour from D.B.S. ledgers.

For United States, data are from Bureau of Labor Statistics, Employment and Earnings Statistics for the United States, 1909-67.

Table III-6

Changes in Relative Employment and Wages,
Canadian Manufacturing Industries, 1949 to 1965

Industry Group ^{1/}	Index of relative employment ^{2/}	Index of relative wages ^{3/}
Food and beverages	110.6	97.4
Tobacco products	72.7	118.7
Rubber products	86.4	94.7
Leather products	80.6	89.2
Textiles	66.7	87.8
Clothing	132.7	83.8
Paper products	111.8	105.9
Printing and publishing	112.5	103.7
Products of petroleum and coal	77.8	108.4
Chemicals	100.0	106.8
Wood products	104.6	92.1
Metal industries	96.8	101.3
Transportation equipment	93.9	100.7
Electrical apparatus	128.6	88.2
Nonmetallic mineral products	125.0	104.0

^{1/} See footnote 1, Table III-2.

^{2/} The 1965 employment weight as an index of the 1949 weight (see Table III-5).

^{3/} The 1965 wage structure index as an index of the 1949 index (see Table III-3). The same results are obtained from dividing an industry's index of increase in wages by the index of increase for the unweighted average for all the industries (Table III-4).

Table III-7

Changes in Relative Employment and Wages,
United States Manufacturing Industries, 1949 to 1965

Industry Group ^{1/}	Index of relative employment ^{2/}	Index of relative wages ^{3/}
Food and beverages	76.5	108.2
Tobacco products	66.7	112.6
Rubber products	100.0	107.1
Leather products	80.6	90.4
Textiles	66.3	85.4
Clothing	101.1	81.5
Paper products	114.4	107.4
Printing and publishing	114.0	93.1
Products of petroleum and coal	60.0	98.2
Chemicals	107.5	109.7
Wood products	82.4	94.3
Metal industries	113.8	105.0
Transportation equipment	112.6	105.6
Electrical apparatus	157.9	98.6
Nonmetallic mineral products	102.6	103.0

^{1/} See footnote 1, Table III-2.

^{2/} The 1965 employment weight as an index of the 1949 weight
(see Table III-5).

^{3/} The 1965 wage structure index as an index of the 1949 index
(see Table III-3). The same results are obtained from dividing
an industry's index of increase in wages by the index of increase
for the unweighted average for all the industries (Table III-4).

Table III-8

The Effect of Employment Shifts in Manufacturing on Wages,
1949 to 1965, Canada-United States

		Lower Quartile (Q1)	Median Earnings	Upper Quartile (Q3)
Canada	1949	.834¢	\$ 1.052	\$ 1.086
	1965	1.732	2.195	2.411
U.S.A.	1949	1.208	1.359	1.498
	1965	2.141	2.634	2.951
		1965/1949	1965/1949	1965/1949
Canada		207.7	208.7	222.0
U.S.A.		177.2	193.8	197.0
		Midquartile (Q3) range (Q1)		
Canada	1949	130.2 (100.0		
	1965	139.2 (106.9		
U.S.A.	1949	124.0 (100.0		
	1965	137.8 (111.1		

Notes: Average hourly earnings, as depicted in Table III-1 for the 15 manufacturing industry groups, are arranged from lowest to highest, and the quartile limits and medians computed on the basis of employment, as given in Table III-5.

With respect to median earnings, half of all employees earn less than the amount given and half earn more; in the case of lower quartile earnings, one quarter of all employees earn less than the amount shown and the other three quarters earn more; similarly, one quarter of all employees earn more than the upper quartile and three quarters earn less.

Table III-9

Historical Review - Hourly Earnings in Manufacturing Industries, ^{1/}
1947 to 1967, Canada-United States, Domestic Dollars

	Food and beverages		Tobacco products		Rubber products		Leather products		Textiles		Clothing		Paper products		Printing and publishing	
	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.
1947	.71	\$ 1.06	.62	\$.91	.88	\$ -	.64	\$ 1.04	.61	\$ 1.04	.66	\$ 1.16	.88	\$ 1.15	.89	\$ 1.48
1948	.80	1.15	.78	.96	1.00	-	.71	1.11	.72	1.16	.74	1.22	1.01	1.28	1.03	1.65
1949	.86	1.21	.86	1.00	1.05	1.46	.75	1.12	.81	1.18	.77	1.21	1.06	1.33	1.14	1.77
1950	.90	1.26	.95	1.08	1.11	1.52	.79	1.17	.84	1.23	.80	1.24	1.11	1.40	1.23	1.83
1951	1.00	1.35	1.11	1.14	1.26	1.63	.86	1.25	.94	1.32	.87	1.31	1.31	1.51	1.33	1.91
1952	1.10	1.44	1.24	1.18	1.35	1.78	.92	1.30	1.01	1.34	.92	1.32	1.43	1.59	1.49	2.02
1953	1.16	1.53	1.30	1.25	1.43	1.88	.97	1.35	1.05	1.36	.96	1.35	1.52	1.67	1.59	2.11
1954	1.21	1.59	1.35	1.30	1.46	1.92	1.00	1.36	1.07	1.36	.99	1.37	1.61	1.73	1.66	2.18
1955	1.25	1.66	1.39	1.34	1.49	2.06	1.02	1.39	1.08	1.38	.98	1.37	1.67	1.81	1.73	2.26
1956	1.31	1.76	1.42	1.45	1.57	2.14	1.05	1.48	1.11	1.44	1.02	1.47	1.78	1.92	1.81	2.33
1957	1.39	1.85	1.53	1.53	1.66	2.23	1.11	1.52	1.16	1.49	1.07	1.51	1.87	2.02	1.89	2.40
1958	1.45	1.94	1.58	1.59	1.71	2.33	1.14	1.56	1.19	1.49	1.10	1.54	1.94	2.10	1.98	2.49
1959	1.53	2.02	1.67	1.64	1.79	2.43	1.17	1.59	1.22	1.56	1.13	1.56	2.00	2.18	2.08	2.59
1960	1.57	2.11	1.67	1.64	1.83	2.49	1.21	1.64	1.27	1.61	1.16	1.59	2.08	2.26	2.16	2.68
1961	1.61	2.17	1.74	1.70	1.87	2.56	1.24	1.68	1.32	1.63	1.20	1.64	2.17	2.34	2.22	2.75
1962	1.64	2.24	1.83	1.78	1.94	2.65	1.28	1.72	1.36	1.68	1.24	1.69	2.24	2.40	2.31	2.82
1963	1.69	2.30	1.87	1.85	1.99	2.69	1.32	1.76	1.41	1.71	1.29	1.73	2.30	2.48	2.40	2.89
1964	1.75	2.37	2.11	1.95	2.07	2.79	1.39	1.82	1.48	1.79	1.34	1.79	2.37	2.56	2.48	2.97
1965	1.83	2.43	2.23	2.09	2.17	2.90	1.46	1.88	1.55	1.87	1.41	1.83	2.45	2.65	2.58	3.06
1966	1.94	2.52	2.42	2.19	2.32	2.99	1.54	1.94	1.65	1.96	1.49	1.89	2.67	2.75	2.72	3.16
1967	2.12	2.64	2.57	2.26	2.46	3.09	1.65	2.07	1.78	2.06	1.60	2.03	2.85	2.87	2.87	3.28

(cont'd)

^{1/} To make possible comparability between Canada and the United States, the industry data have been adjusted in some cases, as described in footnotes to Table III-1.

Table III-9 (concluded)

	Products of petroleum and coal		Chemicals		Wood products		Metal industries		Transportation equipment		Motor vehicles and parts		Electrical apparatus		Nonmetallic mineral products	
	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.
1947	.98	1.50	.81	1.22	.75	1.09	.89	1.34	.98	1.44	1.04	1.47	.86	1.25	.78	1.19
1948	1.15	1.71	.93	1.34	.84	1.19	1.01	1.46	1.08	1.57	1.15	1.61	1.00	1.36	.89	1.31
1949	1.23	1.80	.99	1.42	.93	1.23	1.09	1.53	1.16	1.64	1.23	1.70	1.09	1.41	.96	1.37
1950	1.30	1.84	1.05	1.50	.96	1.29	1.15	1.60	1.21	1.72	1.31	1.78	1.15	1.44	1.02	1.44
1951	1.53	1.99	1.20	1.62	1.07	1.40	1.32	1.74	1.35	1.84	1.44	1.91	1.29	1.56	1.17	1.54
1952	1.73	2.10	1.33	1.69	1.15	1.48	1.46	1.83	1.48	1.95	1.59	2.05	1.40	1.65	1.28	1.61
1953	1.81	2.22	1.38	1.81	1.21	1.55	1.53	1.95	1.57	2.05	1.64	2.14	1.44	1.74	1.36	1.72
1954	1.89	2.29	1.45	1.89	1.26	1.57	1.58	2.00	1.62	2.11	1.67	2.20	1.50	1.79	1.42	1.77
1955	1.96	2.37	1.51	1.97	1.29	1.62	1.65	2.10	1.67	2.21	1.74	2.29	1.51	1.84	1.46	1.86
1956	2.08	2.54	1.60	2.09	1.34	1.69	1.73	2.21	1.74	2.29	1.83	2.35	1.59	1.95	1.53	1.96
1957	2.23	2.66	1.72	2.20	1.40	1.74	1.84	2.33	1.83	2.39	1.92	2.46	1.66	2.04	1.61	2.05
1958	2.30	2.73	1.82	2.29	1.46	1.79	1.92	2.43	1.90	2.51	1.98	2.55	1.72	2.12	1.68	2.12
1959	2.44	2.85	1.88	2.40	1.49	1.86	2.01	2.54	1.99	2.64	2.09	2.71	1.78	2.20	1.74	2.22
1960	2.52	2.89	1.97	2.50	1.58	1.89	2.07	2.60	2.04	2.74	2.16	2.81	1.84	2.28	1.80	2.28
1961	2.58	3.01	2.04	2.58	1.61	1.94	2.13	2.68	2.12	2.80	2.24	2.86	1.88	2.35	1.87	2.34
1962	2.67	3.05	2.10	2.65	1.65	1.97	2.18	2.75	2.20	2.91	2.33	2.99	1.91	2.40	1.92	2.41
1963	2.75	3.16	2.18	2.72	1.72	2.02	2.25	2.82	2.31	3.01	2.44	3.10	1.95	2.46	1.99	2.47
1964	2.85	3.20	2.25	2.80	1.79	2.09	2.31	2.90	2.40	3.09	2.54	3.21	2.02	2.51	2.07	2.53
1965	2.91	3.28	2.31	2.89	1.87 ^{2/}	2.15	2.41 ^{2/}	2.98	2.55	3.21	2.70	3.34	2.10	2.58	2.18	2.62
1966	3.18	3.41	2.43	2.98	-	-	-	-	2.67	3.33	2.77	3.44	2.22	2.65	2.33	2.72
1967	3.38	3.58	2.60	3.10	-	-	-	-	2.81	3.44	2.93	3.55	2.33	2.78	2.49	2.83

^{2/} Because the Canadian data for 1966 and 1967 are based on the new Standard Industrial Classification and because it has not been possible to establish continuity between the old and new classifications for wood products and the metal industries, data for 1966 and 1967 are not reported for these industries.

Sources: For Canada, D.B.S., Reviews of Manhours and Hourly Earnings, (Cat. No. 72-202) except for 1965 which were computed in the Department of Labour from D.B.S. ledgers.

For United States, U.S. Bureau of Labor Statistics, Employment and Earnings Statistics for the United States, 1909-67.

Table III-10

Indexes of Hourly Wages, Manufacturing Industries,
Canada-United States, 1947 to 1967 (1949 = 100)

	Food and beverages		Tobacco products		Rubber products		Leather products		Textiles		Clothing		Paper products		Printing and publishing	
	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.
1947	82.6	87.6	72.1	91.0	83.8	-	85.3	92.9	75.3	88.1	85.7	95.9	83.0	86.5	78.1	83.6
1948	93.0	95.0	90.7	96.0	95.2	-	94.7	99.1	88.9	98.3	96.1	100.8	95.3	96.2	90.4	93.2
1949	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1950	104.7	104.1	110.5	108.0	105.7	104.1	105.3	104.5	103.7	104.2	103.9	102.5	104.7	105.3	107.9	103.4
1951	116.3	111.6	129.1	114.0	120.0	111.6	114.7	111.6	116.0	111.9	113.0	108.3	123.6	113.5	116.7	107.9
1952	127.9	119.0	144.2	118.0	128.6	121.9	122.7	116.1	124.7	113.6	119.5	109.1	134.9	119.5	130.7	114.1
1953	134.9	126.4	151.2	125.0	136.2	128.8	129.3	120.5	129.6	115.3	124.7	111.6	143.4	125.6	139.5	119.2
1954	140.7	131.4	157.0	130.0	139.0	131.5	133.3	121.4	132.1	115.3	128.6	113.2	151.9	130.1	145.6	123.2
1955	145.3	137.2	161.6	134.0	141.9	141.1	136.0	124.1	133.3	116.9	127.3	113.2	157.5	136.1	151.8	127.7
1956	152.3	145.5	165.1	145.0	149.5	146.6	140.0	132.1	137.0	122.0	132.5	121.5	167.9	144.4	158.8	131.6
1957	161.6	152.9	177.9	153.0	158.1	152.7	148.0	135.7	143.2	126.3	139.0	124.8	176.4	151.9	165.8	135.6
1958	168.6	160.3	183.7	159.0	162.9	159.6	152.0	139.3	146.9	126.3	142.9	127.3	183.0	157.9	173.7	140.7
1959	177.9	166.9	194.2	164.0	170.5	166.4	156.0	142.0	150.6	132.2	146.8	128.9	188.7	163.9	182.5	146.3
1960	182.6	174.4	202.3	170.0	174.3	170.5	161.3	146.4	156.8	136.4	150.6	131.4	196.2	169.9	189.5	151.4
1961	187.2	179.3	212.8	178.0	178.1	175.3	165.3	150.0	163.0	138.1	155.8	135.5	204.7	175.9	194.7	155.4
1962	190.7	185.1	217.4	185.0	184.8	181.5	170.7	153.6	167.9	142.4	161.0	139.7	211.3	180.5	202.6	159.3
1963	196.5	190.1	229.1	191.0	189.5	184.2	176.0	157.1	174.1	144.9	167.5	143.0	217.0	186.5	210.5	163.3
1964	203.5	195.9	245.3	195.0	197.1	191.1	185.3	162.5	182.7	151.7	174.0	147.9	223.6	192.5	217.5	167.8
1965	212.8	200.8	259.3	209.0	206.7	198.6	194.7	167.9	191.4	158.5	183.1	151.2	231.1	199.2	226.3	172.9
1966	225.6	208.3	281.4	219.0	221.0	204.8	205.3	173.2	203.7	166.1	193.5	156.2	251.9	205.8	238.6	178.5
1967	246.5	218.2	298.8	226.0	234.3	211.6	220.0	184.8	219.8	174.6	207.8	167.8	268.9	215.8	251.8	185.3

(cont'd)

Table III-10 (concluded)

	Products of petroleum and coal		Chemicals		Wood products		Metal industries		Transportation equipment		Motor vehicles and parts		Electrical apparatus		Nonmetallic mineral products	
	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.
1947	79.7	83.3	81.8	85.9	80.6	88.6	81.7	87.6	84.5	87.8	84.6	86.5	78.9	88.7	81.2	86.9
1948	93.5	95.0	93.9	94.4	90.3	96.7	92.7	95.4	93.1	95.7	93.5	94.7	91.7	96.5	92.7	95.6
1949	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1950	105.7	102.2	106.1	105.6	103.2	104.9	105.5	104.6	104.3	104.9	106.5	104.7	105.5	102.1	106.2	105.1
1951	124.4	110.6	121.2	114.1	115.1	113.8	121.1	113.7	116.4	112.2	117.1	112.4	118.3	110.6	121.9	112.4
1952	140.7	116.7	134.3	119.0	123.7	120.3	133.9	119.6	127.6	118.9	129.3	120.6	128.4	117.0	133.3	117.5
1953	147.2	123.3	139.4	127.5	130.1	126.0	140.4	127.5	135.3	125.0	135.8	129.4	132.1	123.4	141.7	125.5
1954	153.7	127.2	146.5	133.1	135.5	127.6	145.0	130.7	139.7	128.7	133.3	125.9	137.6	127.0	147.9	129.2
1955	159.3	131.7	152.5	138.7	138.7	131.7	151.4	137.3	144.0	134.8	141.5	134.7	138.5	130.5	152.1	135.8
1956	169.1	141.1	161.6	147.2	144.1	137.4	158.7	144.4	150.0	139.6	148.8	138.2	145.9	138.3	159.4	143.1
1957	181.3	147.8	173.7	154.9	150.5	141.5	176.1	158.8	157.8	145.7	156.1	144.7	152.3	144.7	167.7	149.6
1958	187.0	151.7	183.8	161.3	157.0	145.5	176.1	158.8	163.8	153.0	161.0	150.0	157.8	150.4	175.0	154.7
1959	198.4	158.3	189.9	169.0	160.2	151.2	184.4	166.0	171.6	161.0	169.9	159.4	163.3	156.0	181.2	162.0
1960	204.9	160.6	199.0	176.1	169.9	153.7	189.9	169.9	175.9	167.1	175.6	165.3	168.8	161.7	187.5	166.4
1961	209.8	167.2	206.1	181.7	173.1	157.7	195.4	175.2	182.8	170.7	182.1	168.2	172.5	166.7	194.8	170.8
1962	217.1	169.4	212.1	186.6	177.4	160.2	200.0	179.7	189.7	177.4	189.4	175.9	175.2	170.2	200.0	175.9
1963	223.6	175.6	220.2	191.5	184.9	164.2	206.4	184.3	199.1	183.5	198.4	182.4	178.9	174.5	207.3	180.3
1964	231.7	177.8	227.3	197.2	192.5	169.9	211.9	189.5	206.9	188.4	206.5	188.8	185.3	178.0	215.6	184.7
1965	236.6	182.2	233.3	203.5	201.1	174.8	221.1	194.8	219.8	195.7	219.5	196.5	192.7	183.0	227.1	191.2
1966	258.5	189.4	245.5	209.9	-	-	-	-	230.2	203.0	225.2	202.4	203.7	187.9	242.7	198.5
1967	274.8	198.9	262.6	218.3	-	-	-	-	242.2	209.8	238.2	208.8	213.8	197.2	259.4	206.6

Note: The indexes in this table are based on the data in Table III-9; the footnotes to that table apply to this one also.

Table III-11

Ratios of United States to Canadian Hourly Wages,
Manufacturing Industries, 1947 to 1967

	Food and beverages	Tobacco products	Rubber products	Leather products	Textiles	Clothing	Paper products	Printing and publishing	Products of pet- roleum and coal	Chemicals	Wood products	Metal indus- tries	Trans- portation equipment	Motor vehicles and parts	Elec- trical apparatus	Non- metallic mineral products
1947	149.3	146.8	-	162.5	170.5	175.8	130.7	166.3	153.1	150.6	145.3	150.6	146.9	141.3	145.3	152.6
1948	143.8	123.1	-	156.3	161.1	164.9	126.7	160.2	148.7	144.1	141.7	144.6	145.4	140.0	136.0	147.2
1949	140.7	116.3	139.0	149.3	145.7	157.1	125.5	155.3	146.3	143.4	132.3	140.4	141.4	138.2	129.4	142.7
1950	140.0	113.7	136.9	148.1	146.4	155.0	126.1	148.8	141.5	142.9	134.4	139.1	142.1	135.9	125.2	141.2
1951	135.0	102.7	129.4	145.3	140.4	150.6	115.3	143.6	130.1	135.0	130.8	131.8	136.3	132.6	120.9	131.6
1952	130.9	95.2	131.9	141.3	132.7	143.5	111.2	135.6	121.4	127.1	128.7	125.3	131.8	128.9	117.9	125.8
1953	131.9	96.2	131.5	139.2	129.5	140.6	109.9	132.7	122.7	131.2	128.1	127.5	130.6	130.5	120.8	126.5
1954	131.4	96.3	131.5	136.0	127.1	138.4	107.5	131.3	121.2	130.3	124.6	126.6	130.2	131.7	119.3	124.6
1955	132.8	96.4	138.3	136.3	127.8	139.8	108.4	130.6	120.9	130.5	125.6	127.3	132.3	131.6	121.9	127.4
1956	134.4	102.1	136.3	141.0	129.7	144.1	107.9	128.7	122.1	130.6	126.1	127.7	131.6	128.4	122.6	128.1
1957	133.1	100.0	134.3	136.9	128.4	141.1	108.0	127.0	119.3	127.9	124.3	126.6	130.6	128.1	122.9	127.3
1958	133.8	100.6	136.3	136.8	125.2	140.0	108.2	125.8	118.7	125.8	122.6	126.6	132.1	128.8	123.3	126.2
1959	132.0	98.2	135.8	135.9	127.9	138.1	109.0	124.5	116.8	127.7	124.8	126.4	132.7	129.7	123.6	127.6
1960	134.4	97.7	136.1	135.5	126.8	137.1	108.7	124.1	114.7	126.9	119.6	125.6	134.3	130.1	123.9	126.7
1961	134.8	97.3	136.9	135.5	123.5	136.7	107.8	123.9	116.7	126.5	120.5	125.8	132.1	127.7	125.0	125.1
1962	136.6	98.9	136.6	134.4	123.5	136.3	107.1	122.1	114.2	126.2	119.4	126.1	132.3	128.3	125.7	125.5
1963	136.1	97.0	135.2	133.3	121.3	134.1	107.8	120.4	114.9	124.8	117.4	125.3	130.3	127.0	126.2	124.1
1964	135.4	92.4	134.8	130.9	120.9	133.6	108.0	119.8	112.3	124.4	116.8	125.5	128.8	126.4	124.3	122.2
1965	132.8	93.7	133.6	128.8	120.6	129.8	108.2	118.6	112.7	125.1	115.0	123.7	125.9	123.7	122.9	120.2
1966	129.9	90.5	128.9	126.0	118.8	126.8	103.0	116.2	107.2	122.6	-	-	124.7	124.2	119.4	116.7
1967	124.5	87.9	125.6	125.5	115.7	126.9	100.7	114.3	105.9	119.2	-	-	122.4	121.2	119.3	113.7
Percentage reduction in ratios																
1949-65	5.6	19.4	3.9	13.7	17.2	18.0	13.8	23.6	23.0	12.8	13.1	11.9	11.0	10.5	5.0	15.8
1949-66	7.7	22.2	7.3	15.6	18.5	19.3	17.9	25.2	26.7	14.5	-	-	11.8	10.1	7.7	18.2
1949-67	11.5	24.4	9.6	15.9	20.6	19.2	19.8	26.4	27.6	16.9	-	-	13.4	12.3	7.8	20.3

Note: The ratios in this table are based on the data in Table III-9; the footnotes to that table apply also to this one.

Section IV

A Comparison by Region and City

In line with the procedure followed in this study of moving from the general to the particular, the next step in the analysis of U.S.-Canada wage differentials is to look at the situation regionally and in terms of particular occupational wage rates.^{1/} This section considers the regional pattern of average hourly earnings in all manufacturing and then looks at the same data for the more important (industrially) cities of each country.

Following this, attention turns for the first time to wage rates for particular occupations. Aside from general labourer, the jobs considered are skilled craft jobs with reasonably identifiable skills for which a comparison can be made with some assurance that the same type of job is under examination in each place. The section concludes with a brief look at rates for some of these jobs in terms of their variation by size of city.

In this section more than in the others, the tables are largely left to speak for themselves. In part this is because the numbers and kinds of possible comparisons, say in Table IV-1, are so many that it would make little sense even to try a few of them. Furthermore, the reader can make his own analysis from the data in the tables. He may want to know, for example, how manufacturing wages in Ohio compare with those in Ontario (see Table IV-1) or how wages in Flint, Michigan compare with those in St. Thomas, Ontario (see Table IV-2).

However, the following comparison has been distilled from Table IV-1. Average hourly earnings in Canadian regions are compared with those of adjacent U.S. regions:

		U.S./Canada Ratio
Atlantic Region	\$1.85	
New England	2.56	138.4
Quebec	2.02	$\frac{\text{New England}}{\text{Quebec}}$ 126.7
Quebec-Ontario	2.24 ^{2/}	
Midwest-Great Lakes	2.93 ^{2/}	130.8
Ontario	2.37	$\frac{\text{Midwest-Great Lakes}}{\text{Ontario}}$ 123.6
Prairies	2.12	
Plains	2.76	130.2
British Columbia-Alberta ^{3/}	2.66 ^{2/}	
Rocky Mountain-Far West	3.13 ^{2/}	117.7

^{1/} It is regretted that the regional analysis is quite incomplete and that many job rate comparisons that had been contemplated have not been made. This kind of analysis takes a great deal of time. It is hoped that more of it will be done later.

^{2/} Where regions are combined, the earnings are averaged, weighted by number of wage earners in each region.

^{3/} Alberta is included in both this and the Prairies comparison.

The differential is lowest in the high-wage western regions of British Columbia-Alberta compared with the Rocky Mountain-Far West regions. Indeed, if British Columbia alone is compared with the Far West only, the ratio is even lower, 113.3. On the other hand, the ratio is highest in the case of the relatively low-wage Atlantic Region. Aside from the west coast differentials, the next lowest ratio is found when the industrialized high-wage province of Ontario is compared with the adjacent regions. However, the above comparison included on the U.S. side, not only the Great Lakes region but the lower-wage Mideast region. If the comparison is between Ontario and the Great Lakes region plus New York State (U.S. wages averaging \$3.00), the U.S./Canada ratio becomes 126.6 compared with 123.6 when the entire Mideast region is included. In fact, the ratio is almost identical with that for Quebec and New England.

The lowest U.S. city wage appearing in Table IV-2 is \$1.86 for Fort Smith, Arkansas. Eight Canadian cities show even lower wages than this; however, they only account for 4.0 per cent of the wage earners reported. For these eight cities there is not one U.S. city on this table with which they can claim nominal (i.e., domestic dollar) "parity". The highest Canadian city wage on the table is \$3.09, for Sarnia, Ontario. There are 42 cities in the United States showing a higher wage; they account for 21.5 per cent of all wage earners. This means that for the other 128 U.S. cities appearing in the table, their wages must fall near the level obtaining in at least one Canadian city although eight of the 48 Canadian cities are below the level of any U.S. city.

As promised, the analysis turns next to wage rates for some specific and reasonably identifiable jobs. In Table IV-3A the rates examined are for maintenance carpenter, electrician, machinist, mechanic, and labourer in manufacturing industries. The rates are for cities, which can also be considered labour markets, and for that reason some rates are associated with the names of a number of communities that together constitute a single labour market. The metropolitan area population as of the last census is given because the data are grouped in Table IV-5A and IV-5B by size of city. So that the wages in a particular city can be compared with the U.S. wage for the job in question, an unweighted average of the U.S. rates for each job has been computed and the rate in each Canadian city expressed as a percentage of it; this is in Table IV-3B. While these percentages vary considerably from city to city, unweighted averages of them for each job are remarkably alike. The lowest percentage was 76.9 for carpenter and the highest 83.1 for labourer, a difference of only 6.2 percentage points.

These Canadian rates tended to be 23 to 17 per cent below the U.S. averages. Aside from labourer rates, in only one case, that of mechanic in Windsor, was the Canadian figure higher than the U.S. average, and then it was only 0.9 per cent higher. However, five labourer rates exceeded the U.S. average and one was at par with it.

The rates just discussed were, as pointed out, for maintenance jobs and labourer in manufacturing. In Table IV-4A, rates are given for carpenter, lather, plasterer, plumber, sheet metal worker, and labourer in building construction. In Table IV-4B the Canadian rates are expressed in each city as percentages of the U.S. average for the job. One element in this comparison must be mentioned: both the Canadian and U.S. rates are union rates, that is, rates specified in collective agreements. If nonunion rates were also included, the averages would likely be smaller. However, the fact that rates in both countries are

union rates means that, at least in terms of that factor, the comparison is valid.

As in the case of the manufacturing jobs in Table IV-3A, the Canadian percentages of the U.S. figures, averaged out, were remarkably similar, ranging from a low of 67.7 to a high of 70.8, a difference of only 3.1 percentage points. However, the percentage are markedly lower than they were for the manufacturing jobs. The construction job rates, shown in Table IV-4A, tended to be 30 per cent less in Canada compared with 23 to 17 per cent less for the manufacturing jobs. Another difference is that in not one Canadian city was a single construction job rate found that was higher than the U.S. average. Of course, some individual Canadian city rates can be found that are higher than some individual U.S. city rates, but not higher than the all-city U.S. average.

It is generally known that wages tend to be higher in large communities than in small ones.^{4/} The extent of the difference is suggested in Table IV-5A for Canada and Table IV-5B for the United States. The wage data from Table IV-3A have been arranged by size of city as shown by census population figures, 1961 for Canada, 1960 for the United States. Because there are many more large cities (one million and over) in the United States than in Canada, it was possible to divide the U.S. cities into three size groups, less than 500,000, from 500,000 to one million (999,999 to be exact) and one million and over. Canadian cities were divided into two groups only, those with 100,000 people and more, and those with less. These size breakdowns are entirely arbitrary and the data would, of course, be different if other breakdowns were used. But the difference between wages in large and small cities would remain.

The differences are shown in the following table where the wage rates for the largest cities are expressed as a ratio of the rates for the smaller cities.

	<u>Canada</u>	<u>United States</u>	
	Wages in largest cities as a ratio of wages in smaller cities	Wages in larger cities as a ratio of wages in:	
		Smallest ^{5/} cities	Medium ^{5/} cities
Carpenter	111.0	109.1	102.4
Electrician	109.1	111.6	104.0
Machinist	109.3	113.6	103.1
Mechanic	111.1	109.0	104.9
Labourer	108.9	114.2	111.3
<u>Average</u>	110.2	111.3	104.7

^{4/} There are, of course, many exceptions, especially if a small community is dominated by one large, high-wage industry.

^{5/} In the case of the United States, the smallest cities are those with a population less than 500,000, the medium cities, those with a population between half a million and a million.

The fact that the difference in Canada is almost as great for labourers as for the skilled trades shown, and is in fact greater in the United States, should be sufficient to demonstrate that the "big city differential" applies right through the spectrum of skills. Such a difference raises questions that are not directly germane to this study, these questions all having to do with why wages should be higher in larger communities than in smaller ones. However, it also introduces one possible reason (among others) for U.S. wages being higher than Canadian, namely, the greater number, absolutely and proportionately, of large cities in the United States. Perhaps the sheer size of U.S. labour markets tends to enhance wages to a greater degree than in Canada. If so, it is only one of many possible explanatory factors none of which are considered in this study, the purpose of which is to depict, not explain.

This particular type of internal, that is, domestic differential has been introduced because it is an important element in regional differentials, which this section has considered briefly.

These tables also show intercity variation in wages in terms of standard deviations and coefficients of variation. A comparison of the latter reveals greater uniformity of wages among larger cities than smaller ones. The coefficients of variation for the smaller Canadian cities were all greater than for the larger cities. (The greater the coefficient, the degree of variation.) In the U.S. table with the three size groups, in only the rate for machinist was the coefficient higher for the largest cities than for the medium-size cities, and in every case they were highest for the smallest cities (although barely so in the case of the coefficient for mechanics' wages in smallest and medium-size cities).

It would be pointless to compare Canadian and U.S. coefficients of variation by various city sizes because of the great differences in average absolute size in the two countries. However, for what it's worth, it might be pointed out that for all cities in each country, only for the labourer rate was the coefficient greater in the United States than in Canada. Because of the apparently^{6/} greater intercity wage variation in Canada, the variations in U.S./Canada ratios between different Canadian and U.S. cities is likely to be explained more by variations on the Canadian than on the U.S. side.

^{6/}The word, "apparently" is used because greater U.S. variation is shown for labourers and this might be the case for other unskilled jobs. But this has not been investigated at this time.

Table IV-1

Average Wages, Hours and Employment, All Manufacturing,
by Region, Province and State, Canada-United States, 1966

Regions	Average Weekly Hours	Average Hourly Earnings \$	Average Weekly Wages \$	Average Number of Wage Earners ^{1/}
C a n a d a				
Atlantic Region ^{2/}	41.1	1.85	76.01	48,751
Newfoundland.....	40.9	1.91	77.81	8,077
Nova Scotia.....	40.6	1.85	75.08	22,229
New Brunswick.....	41.9	1.86	77.85	16,935
Quebec.....	41.8	2.02	84.20	322,341
Ontario.....	40.8	2.37	96.44	525,956
Prairie Region.....	39.9	2.12	84.55	62,956
Manitoba.....	40.0	1.94	77.65	29,023
Saskatchewan.....	39.8	2.28	90.91	7,645
Alberta.....	39.9	2.27	90.33	26,288
British Columbia.....	37.7	2.79	104.96	81,609
U n i t e d S t a t e s ^{2/}				
New England.....	41.6	2.56	106.52	1,547,500
Maine.....	41.5	2.15	89.23	114,400
New Hampshire.....	41.1	2.14	87.95	96,100
Vermont.....	43.0	2.30	98.90	43,500
Massachusetts.....	40.7	2.57	104.60	694,200
Rhode Island.....	40.7	2.27	92.39	126,900
Connecticut.....	43.2	2.82	121.82	472,400
Mideast.....	40.7	2.76	112.46	4,682,400
New York.....	40.2	2.77	111.35	1,902,500
New Jersey.....	41.3	2.84	117.29	874,800
Pennsylvania.....	40.8	2.72	110.98	1,555,800
Delaware.....	41.0	2.84	116.44	70,400
Maryland.....	41.2	2.72	112.06	278,900
Great Lakes.....	42.3	3.08	130.49	5,152,700
Michigan.....	43.3	3.35	145.10	1,139,500
Ohio.....	42.4	3.10	131.56	1,398,700
Indiana.....	41.9	3.02	126.54	716,300
Illinois.....	41.7	2.95	123.04	1,390,700
Wisconsin.....	42.0	2.87	120.68	507,500
Plains.....	41.5	2.76	114.39	1,173,400
Minnesota.....	41.5	2.80	116.13	283,200
Iowa.....	41.2	2.91	119.71	211,900
Missouri.....	40.7	2.72	110.70	442,700
North Dakota.....	42.3	2.48	104.73	9,000
South Dakota.....	45.6	2.42	110.35	14,000
Nebraska.....	43.1	2.47	106.63	74,900
Kansas.....	42.9	2.79	119.74	137,700

(cont'd)

Table IV-1 (concluded)

Regions	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages	Average Number of Wage Earners
		\$	\$	
Southeast.....	41.5	2.16	89.69	3,544,000
Virginia.....	41.6	2.18	90.69	338,700
West Virginia.....	40.5	2.82	114.21	132,300
Kentucky.....	40.9	2.55	104.30	220,300
Tennessee.....	40.8	2.16	88.13	426,300
North Carolina.....	41.4	1.92	79.49	635,800
South Carolina.....	42.0	1.96	82.32	313,900
Georgia.....	41.2	2.09	86.11	426,800
Florida.....	42.5	2.26	96.05	276,200
Alabama.....	41.7	2.31	96.33	292,500
Mississippi.....	41.5	1.90	78.85	165,800
Louisiana.....	42.5	2.67	113.48	167,100
Arkansas.....	41.4	1.89	78.25	148,300
Southwest.....	41.9	2.58	108.12	829,100
Oklahoma.....	41.7	2.51	104.67	113,400
Texas.....	42.0	2.57	107.94	620,400
New Mexico.....	40.1	2.32	93.03	18,300
Arizona.....	41.5	2.85	118.28	77,000
Rocky Mountain.....	40.9	2.87	117.29	214,600
Montana.....	40.6	2.91	118.15	23,400
Idaho.....	40.7	2.73	111.11	35,400
Wyoming.....	38.5	2.94	113.19	6,700
Colorado.....	41.3	2.87	118.53	98,600
Utah.....	40.6	2.94	119.36	50,500
Far West	40.5	3.16	128.27	1,959,300
Washington.....	39.7	3.25	129.03	265,300
Oregon.....	39.6	3.05	120.78	166,200
Nevada.....	40.4	3.28	132.51	7,100
California.....	40.8	3.16	128.93	1,520,700

^{1/} Wage earner data for Canada are simple averages of the unrevised monthly data and were compiled by the Canada Department of Labour from the D.B.S., monthly publications of manhours and hourly earnings.

^{2/} Atlantic Region includes data for Prince Edward Island although data for this province are not available separately.

^{3/} Excludes District of Columbia, Alaska and Hawaii.

Sources: For Canada, D.B.S., Manhours and Hourly Earnings (Cat. No. 72-202)
For United States, U.S. Bureau of Labor Statistics, Employment and Earnings Statistics for States and Areas 1939-66.

Table IV-2

Average Wages, Hours and Employment, All Manufacturing
Selected Cities,^{1/} Canada-United States, 1966

Cities	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages	Average Number of Wage Earners 2/
		\$	\$	
		C a n a d a		
St. John's, Nfld.....	42.0	1.63	68.72	1,619
Halifax, N.S.....	41.0	2.07	85.02	4,784
Sydney, N.S.....	40.0	2.58	103.06	3,489
Moncton, N.B.....	41.1	1.76	72.21	1,224
Saint John, N.B.....	41.4	2.12	87.67	4,659
Drummondville, Qué.....	41.1	1.77	72.78	4,927
Granby, Qué.....	42.3	1.77	74.91	5,137
Montréal, Qué.....	41.2	2.05	84.41	171,898
Québec, Qué.....	40.4	2.02	81.67	15,883
Shawinigan, Qué.....	42.4	2.33	98.99	6,502
Sherbrooke, Qué.....	43.6	1.82	79.48	6,923
Sorel, Qué.....	41.8	2.47	103.44	5,032
St. Hyacinthe, Qué.....	41.7	1.59	66.39	4,288
St. Jean, Qué.....	42.0	1.81	75.83	4,787
St. Jérôme, Qué.....	40.6	1.74	70.46	2,805
Trois-Rivières, Qué.....	42.5	2.19	93.02	9,676
Valleyfield, Qué.....	42.8	2.12	90.93	5,086
Hull-Ottawa, Qué.-Ont.....	40.4	2.37	95.70	11,782
Belleville, Ont.....	40.9	1.93	79.17	5,228
Brampton, Ont.....	41.2	2.29	94.53	8,639
Brantford, Ont.....	39.9	2.29	91.44	10,955
Brockville, Ont.....	40.8	2.23	90.81	4,469
Chatham, Ont.....	40.4	2.53	102.25	3,291
Cornwall, Ont.....	42.0	2.27	95.65	4,892
Fort William - Port Arthur, Ont.....	40.8	2.63	107.15	5,014
Guelph, Ont.....	40.7	2.13	86.89	6,602
Hamilton, Ont.....	40.3	2.64	106.09	51,334
Kingston, Ont.....	41.1	2.42	99.70	5,586
Kitchener, Ont.....	40.5	2.03	82.22	30,238
London, Ont.....	40.0	2.21	88.50	15,074
Niagara Falls, Ont.....	40.6	2.46	100.06	4,341
Oshawa, Ont.....	39.9	2.87	114.41	18,447
Peterborough, Ont.....	41.1	2.66	109.39	6,484
Sarnia, Ont.....	41.0	3.09	126.76	6,352
Stratford, Ont.....	40.3	1.94	78.24	4,636
St. Catharines, Ont.....	40.1	2.79	111.99	16,378
St. Thomas, Ont.....	40.4	2.02	81.50	2,926
Toronto, Ont.....	40.9	2.29	93.56	176,197
Welland, Ont.....	40.4	2.75	111.20	10,025
Windsor, Ont.....	42.2	2.82	118.78	25,189
Woodstock, Ont.....	39.3	2.16	84.83	5,396
Winnipeg, Man.....	39.8	1.92	76.13	24,395
Regina, Sask.....	40.7	2.41	98.07	2,698
Saskatoon, Sask.....	39.8	2.30	91.80	2,275
Calgary, Alta.....	39.9	2.38	95.12	7,497
Edmonton, Alta.....	39.7	2.22	88.16	11,580
Vancouver, B.C.....	37.6	2.70	101.30	40,469
Victoria, B.C.....	38.1	2.82	107.42	4,500

(cont'd)

Table IV-2 (cont'd)

Cities	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages	Average Number of Wage Earners ^{2/}
		\$	\$	
U n i t e d S t a t e s				
Alabama				
Birmingham.....	42.4	2.90	122.96	64,900
Mobile.....	42.3	2.66	112.52	22,200
Arizona				
Phoenix.....	41.6	2.82	117.31	60,400
Tucson.....	41.4	3.29	136.21	7,600
Arkansas				
Fort Smith.....	40.6	1.86	75.52	13,500
Little Rock - North Little Rock...	40.8	1.90	77.52	19,900
Pine Bluff.....	41.4	2.27	93.98	5,500
California				
Anaheim-Santa Ana-Garden Grove....	41.6	3.12	129.79	106,000
Bakersfield.....	40.1	3.35	134.34	8,900
Fresno.....	39.1	2.78	108.70	15,900
Los Angeles-Long Beach.....	41.1	3.09	127.00	826,200
Oxnard-Ventura.....	39.4	2.88	113.47	11,400
Sacramento.....	39.4	3.45	135.93	28,500
San Bernardino-Riverside-Ontario..	40.8	3.07	125.26	45,900
San Diego.....	40.4	3.41	137.76	56,200
San Francisco-Oakland.....	40.0	3.42	136.80	203,000
San Jose.....	41.3	3.23	133.40	102,800
Santa Barbara.....	39.8	3.14	124.97	10,100
Santa Rosa.....	38.9	2.80	108.92	6,500
Stockton.....	40.0	3.13	125.20	15,100
Vallejo-Napa.....	38.9	3.22	125.26	6,600
Colorado				
Denver.....	41.5	2.93	121.60	70,400
Connecticut				
Bridgeport.....	43.8	2.89	126.58	75,500
Hartford.....	44.2	2.97	131.27	110,400
New Britain.....	43.8	2.86	125.27	25,100
New Haven.....	42.3	2.84	120.13	47,400
Stamford.....	42.3	2.86	120.98	24,200
Waterbury.....	43.5	2.77	120.50	39,800
Delaware				
Wilmington.....	41.3	3.15	130.10	67,800
District of Columbia				
Washington, SMSA.....	40.4	2.95	119.18	42,300
Florida				
Fort Lauderdale-Hollywood.....	41.0	2.21	90.61	13,500
Jacksonville.....	41.7	2.41	100.50	23,800
Miami.....	41.3	2.15	88.80	59,000
Orlando.....	43.7	2.21	96.58	18,800
Pensacola.....	41.9	2.64	110.62	14,300
Tampa-St. Petersburg.....	42.9	2.34	100.39	46,200
West Palm Beach.....	41.2	2.69	110.83	15,100
Georgia				
Atlanta.....	40.4	2.61	105.44	116,300
Savannah.....	42.2	2.55	107.61	15,700
Illinois				
Chicago.....	41.9	2.99	125.10	973,900
Davenport-Rock Island-Moline.....	41.8	3.35	140.08	48,700
Peoria.....	42.0	3.28	137.78	47,200
Rockford.....	43.5	2.90	125.85	55,500

Table IV-2 (cont'd)

Cities	Average Weekly Hours	Average Hourly Earnings \$	Average Weekly Wages \$	Average Number of Wage Earners ^{2/}
Indiana				
Indianapolis.....	42.7	3.04	129.81	132,600
Iowa				
Cedar Rapids.....	42.9	2.85	122.32	26,500
Des Moines.....	40.3	3.22	129.65	24,100
Kansas				
Topeka.....	44.0	2.92	128.35	7,900
Wichita.....	43.1	2.99	128.82	53,200
Kentucky				
Louisville.....	41.6	2.98	124.01	99,900
Louisiana				
Baton Rouge.....	41.2	3.36	138.33	17,100
New Orleans.....	41.7	2.83	118.01	59,500
Shreveport.....	43.1	2.46	106.03	12,500
Maine				
Lewiston-Auburn.....	39.4	1.93	76.04	14,100
Portland.....	40.6	2.27	92.16	14,600
Maryland				
Baltimore.....	41.3	2.85	117.71	201,400
Massachusetts				
Boston.....	40.6	2.76	112.06	294,300
Brockton.....	39.8	2.26	89.95	16,800
Fall River.....	35.9	2.05	73.60	21,700
Lawrence-Haverhill.....	39.8	2.40	95.52	38,500
Lowell.....	39.5	2.25	88.88	19,800
New Bedford.....	39.0	2.16	84.24	26,800
Springfield-Chicopee-Holyoke.....	41.2	2.63	108.36	73,800
Worcester.....	41.3	2.74	113.16	50,900
Michigan				
Ann Arbor.....	41.9	3.38	141.79	33,300
Battle Creek.....	42.4	3.20	135.85	25,600
Bay City.....	42.1	3.11	131.06	12,600
Detroit.....	44.0	3.54	155.76	598,200
Flint.....	43.5	3.69	160.56	84,700
Grand Rapids.....	42.0	2.90	121.76	76,200
Jackson.....	42.3	3.28	138.87	20,100
Kalamazoo.....	44.1	3.03	133.80	28,600
Lansing.....	42.2	3.45	145.76	38,300
Muskegon-Muskegon Heights.....	42.3	3.15	133.08	28,100
Saginaw.....	43.5	3.40	147.99	31,100
Minnesota				
Duluth-Superior.....	39.3	2.86	112.67	10,200
Minneapolis-St. Paul.....	41.8	2.96	123.53	187,600
Mississippi				
Jackson.....	43.7	1.96	85.65	13,500
Missouri				
Kansas City.....	41.7	2.93	122.18	126,400
St. Louis.....	40.9	3.02	123.52	290,200

(cont'd)

Table IV-2 (cont'd)

Cities	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages	Average Number of Wage Earners ^{2/}
		\$	\$	
Nebraska				
Omaha.....	42.6	2.68	113.94	37,000
New Hampshire				
Manchester.....	39.6	2.04	80.78	18,200
New Jersey				
Atlantic City.....	39.3	2.20	86.46	9,800
Jersey City.....	41.1	2.80	115.08	118,000
Newark.....	41.5	2.85	118.28	255,800
Paterson-Clifton-Passaic.....	41.4	2.84	117.58	180,400
Perth Amboy.....	42.2	2.95	124.49	104,700
Trenton.....	40.9	2.83	115.75	43,000
New Mexico				
Albuquerque.....	40.1	2.45	98.24	8,500
New York				
Albany-Schenectady-Troy.....	41.6	2.94	122.30	63,500
Binghamton.....	41.3	2.58	106.55	46,900
Buffalo.....	42.1	3.21	135.14	180,500
Elmira.....	41.2	2.73	112.48	16,400
Monroe County.....	42.7	3.12	133.22	128,300
Nassau and Suffolk Counties.....	41.3	2.78	114.81	150,400
New York-Northeastern New Jersey.	39.6	2.76	109.30	1,769,700
New York SMSA.....	38.5	2.71	104.34	1,110,900
New York City.....	37.9	2.69	101.95	870,800
Rochester.....	42.7	3.02	128.95	141,400
Syracuse.....	41.3	2.89	119.36	70,000
Utica-Rome.....	41.6	2.62	108.99	41,900
Westchester County.....	40.0	2.75	110.00	75,600
North Carolina				
Asheville.....	39.8	1.93	76.81	20,700
Charlotte.....	41.8	2.02	84.44	38,500
Greensboro-High Point.....	40.7	1.99	80.99	50,200
Raleigh.....	38.1	2.04	77.72	14,200
North Dakota				
Fargo-Moorhead.....	40.1	2.68	107.51	2,500
Ohio				
Akron.....	42.6	3.42	145.83	94,700
Canton.....	41.6	3.11	129.27	61,600
Cincinnati.....	42.2	2.90	122.49	162,200
Cleveland.....	43.1	3.16	136.40	312,400
Columbus.....	40.7	2.97	121.04	84,700
Dayton.....	43.2	3.39	146.64	124,200
Toledo.....	42.7	3.23	138.07	79,600
Youngstown-Warren.....	40.9	3.37	138.00	85,700
Oklahoma				
Oklahoma City.....	41.7	2.39	99.66	30,400
Tulsa.....	42.4	2.77	117.45	39,100
Oregon				
Portland.....	39.6	3.07	121.57	81,400

(cont'd)

Table IV-2 (cont'd)

Cities	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages	Average Number of Wage Earners ^{2/}
		\$	\$	
Pennsylvania				
Allentown-Bethlehem-Easton.....	39.4	2.71	106.77	104,600
Altoona.....	39.9	2.28	90.97	14,600
Erie.....	42.7	2.81	119.99	43,500
Harrisburg.....	40.4	2.41	97.36	38,700
Johnstown.....	37.7	2.91	109.71	26,700
Lancaster.....	41.7	2.45	102.17	54,600
Philadelphia.....	41.1	2.87	117.96	575,200
Pittsburgh.....	40.9	3.22	131.70	291,100
Reading.....	40.6	2.47	100.28	56,600
Scranton.....	38.3	2.16	82.73	34,300
Wilkes-Barre-Hazleton.....	37.1	2.09	77.54	51,600
York.....	42.4	2.31	97.94	58,100
Rhode Island				
Providence-Pawtucket-Warwick.....	40.9	2.28	93.25	144,600
South Carolina				
Charleston.....	41.3	2.25	92.92	12,900
Greenville.....	42.6	1.94	82.64	53,100
South Dakota				
Sioux Falls.....	47.5	2.70	128.25	5,400
Tennessee				
Chattanooga.....	41.2	2.35	96.82	49,800
Knoxville.....	40.4	2.44	98.58	47,700
Memphis.....	42.0	2.41	101.22	54,200
Nashville.....	41.4	2.33	96.46	60,600
Texas				
Amarillo.....	40.6	2.23	90.54	4,800
Austin.....	40.5	1.98	80.19	6,600
Beaumont-Port Arthur.....	40.9	3.35	137.02	34,200
Corpus Christi.....	42.4	2.96	125.50	10,300
Dallas.....	41.8	2.37	99.07	132,100
El Paso.....	39.0	1.90	74.10	18,800
Fort Worth.....	42.5	2.81	119.43	71,700
Galveston-Texas City.....	42.2	3.64	153.61	10,200
Houston.....	43.1	3.00	129.30	125,800
Lubbock.....	42.6	2.03	86.48	6,600
San Antonio.....	41.8	1.98	82.76	26,400
Waco.....	42.8	2.21	94.59	11,700
Wichita Falls.....	40.2	2.00	80.40	3,500
Utah				
Salt Lake City.....	40.9	2.81	114.93	28,400
Vermont				
Burlington.....	43.0	2.40	103.20	9,000
Springfield.....	44.1	2.61	115.10	7,400
Virginia				
Lynchburg.....	43.0	2.03	87.29	21,300
Norfolk-Portsmouth.....	43.4	2.30	99.82	19,300
Richmond.....	40.8	2.43	99.14	50,500
Roanoke.....	42.3	2.04	86.29	17,200
Washington				
Seattle-Everett.....	40.2	3.35	134.67	152,300
Spokane.....	39.7	3.23	128.23	13,000
Tacoma.....	38.6	3.17	122.36	19,700

Table IV-2 (concluded)

Cities	Average Weekly Hours	Average Hourly Earnings \$	Average Weekly Wages \$	Average Number of Wage Earners ^{2/}
West Virginia				
Charleston.....	42.4	3.29	139.50	22,200
Huntingdon-Ashland.....	39.1	3.04	118.86	26,700
Wheeling.....	40.2	2.85	114.57	16,700
Wisconsin				
Green Bay.....	44.3	2.73	120.72	15,500
Kenosha.....	40.5	3.26	131.71	16,700
La Crosse.....	39.9	2.57	102.50	9,300
Madison.....	41.5	3.04	126.20	15,500
Milwaukee.....	41.8	3.18	133.18	207,600
Racine.....	41.3	3.09	127.38	26,400
Wyoming				
Casper.....	39.7	3.29	130.61	1,300

^{1/} All cities are included in this table for which the relevant data were available from Canadian or U.S. sources.

^{2/} Wage earner data for Canada are simple averages of the unrevised monthly data and were compiled by the Canada Department of Labour from the D.B.S., monthly publications of manhours and hourly earnings.

Sources: For Canada, D.B.S., Manhours and Hourly Earnings (Cat. No. 72-202)
For United States, U.S. Bureau of Labor Statistics, Employment and Earnings Statistics for States and Areas 1939-66.

Table IV-3A
Average Wage Rates^{1/} for Selected Maintenance Occupations
and Labourers, in Manufacturing, for Various Cities in
Canada, 1966, and 85 Metropolitan Areas in the United States, 1966-67

Cities	Carpenter	Electrician	Machinist	Mechanic	Labourer	Metropolitan Area Population 1961 ^{2/}
	\$	\$	\$	\$	\$	\$
C a n a d a						
Corner Brook, Nfld.	-	3.15	3.17	-	2.18	25,185
St. John's, Nfld.*	2.02	2.48	2.71	2.25	1.45	90,838
Halifax, N.S.*	2.41	2.61	2.60	2.31	1.75	183,946
Sydney, N.S.	-	-	-	2.92	2.16	86,174
Moncton, N.B.	1.87	-	-	2.21	1.64	61,423
Saint John, N.B.	2.24	2.52	2.36	2.27	1.66	95,563
Drummondville, Que.	2.15	2.10	2.22	2.09	1.41	37,599
Granby, Que.	2.00	2.21	2.24	2.00	1.71	35,720
Montreal, Que.*	2.59	2.75	2.69	2.64	1.89	2,109,509
Quebec, Que.*	2.57	2.69	2.75	2.66	2.01	357,568
Rouyn-Noranda, Que.	-	-	-	-	1.76	30,193
Saguenay, Que.	2.76	2.99	3.04	2.78	2.02	125,984
St. Hyacinthe, Que.	1.91	2.24	2.04	2.08	1.43	29,842
St. Jean-Iberville, Que.	1.96	2.24	2.29	1.98	1.51	39,114
St. Jerome, Que.	2.44	2.65	2.51	2.23	1.75	28,559
Shawinigan, Que.	2.90	2.95	2.93	2.44	1.54	69,262
Sherbrooke, Que.	1.97	2.27	2.17	2.15	1.53	81,970
Sorel, Que.	2.47	2.63	2.70	2.64	2.14	27,753
Thetford Mines, Que.	-	-	-	-	1.78	28,971
Trois-Rivières, Que.	2.50	2.82	2.76	2.40	1.60	87,180
Valleyfield, Que.	2.51	2.54	2.51	2.50	2.16	34,501
Hull-Ottawa, Que.-Ont.*	2.72	2.94	2.99	2.71	2.02	429,750
Belleville, Ont.	2.57	2.60	2.37	2.34	1.83	62,249
Brampton, Ont.	2.51	2.87	2.57	2.54	2.02	46,547
Brantford, Ont.	2.48	2.89	2.81	2.57	1.98	72,026
Brockville, Ont.	2.63	2.78	2.73	2.56	2.07	35,559
Chatham, Ont.	-	2.87	2.88	2.83	2.20	57,962
Cornwall, Ont.	2.74	2.81	2.93	2.57	2.03	49,579

(cont'd)

Table IV-3A (cont'd)

Cities	Carpenter	Electrician	Machinist	Mechanic	Labourer	Metropolitan Area Population 1961 ² / ₂
Fort William-Port Arthur, Ont.	\$ 3.07	\$ 3.04	\$ 3.25	\$ 2.86	\$ 2.23	\$ 105,098
Galt, Ont.	2.22	2.48	2.33	2.16	1.84	27,830
Guelph, Ont.	2.47	2.74	2.48	2.82	1.91	46,074
Hamilton, Ont.*	3.03	3.20	3.14	3.07	2.21	395,189
Kingston, Ont.	2.58	2.83	2.86	2.78	1.99	70,727
Kitchener-Waterloo, Ont.*	2.26	2.62	2.47	2.46	1.95	154,864
London, Ont.*	2.51	2.88	2.80	2.73	2.06	181,283
Niagara Falls, Ont.	2.77	3.02	2.83	2.77	2.30	58,502
North Bay, Ont.	2.33	2.76	2.58	2.54	1.68	42,700
Oshawa, Ont.	2.98	3.22	2.99	2.98	2.57	88,408
Peterborough, Ont.	2.41	2.71	2.72	2.67	2.02	66,452
St. Catharines, Ont.	2.99	3.20	3.03	3.12	2.30	99,208
St. Thomas, Ont.	2.40	2.61	2.42	2.49	1.97	42,753
Sarnia, Ont.	3.12	3.29	3.29	3.15	2.44	68,014
Sault Ste. Marie, Ont.	3.22	3.40	3.43	3.22	2.27	65,560
Stratford, Ont.	2.15	2.45	2.46	2.25	1.84	29,528
Sudbury, Ont.*	3.15	3.31	3.27	3.19	2.43	110,694
Timmins, Ont.	-	-	-	2.15	1.42	50,356
Toronto, Ont.*	2.68	2.98	2.83	2.78	1.98	1,824,481
Welland, Ont.	3.06	3.17	3.09	2.82	2.30	65,760
Windsor, Ont.*	3.07	3.31	3.08	3.27	2.55	193,365
Woodstock, Ont.	2.27	2.72	2.65	2.55	2.01	38,931
Winnipeg, Man.*	2.41	2.72	2.63	2.56	1.79	475,989
Regina, Sask.	2.54	3.01	3.02	2.67	1.88	145,347
Saskatoon, Sask.	-	2.83	3.09	2.53	1.94	95,526
Calgary, Alta.*	2.42	2.96	2.94	2.68	2.01	279,062
Edmonton, Alta.*	2.68	3.08	2.99	2.67	1.85	337,568
Vancouver, B.C.*	3.15	3.37	3.15	3.11	2.43	790,165
Victoria, B.C.*	3.15	3.33	3.05	3.21	2.36	154,152
Average (unweighted)	2.56	2.82	2.77	2.61	1.96	
Average (weighted by population)	2.66	2.91	2.83	2.73	2.00	

(cont'd)

Table IV-3A (cont'd)

Cities	Carpenter	Electrician	Machinist	Mechanic	Labourer	Metropolitan Area Population 1960 ²
	\$	\$	\$	\$	\$	\$
United States						
Northeast						
Albany-Schenectady-Troy, N.Y.	3.41	3.52	3.49	3.25	2.29	657,503
Allentown-Bethlehem-Easton, Pa.-N.J.	3.13	3.23	3.21	3.27	2.52	492,168
Boston, Mass.	3.16	3.40	3.39	3.00	2.28	2,595,481
Buffalo, N.Y.	3.42	3.64	3.65	3.48	2.67	1,306,957
Lawrence-Haverhill, Mass.-N.H.	2.93	3.31	3.22	3.13	2.38	200,392
Manchester, N.H.	-	2.71	2.73	2.60	1.64	102,861
Newark and Jersey City, N.J.	3.41	3.62	3.65	3.45	2.75	2,300,154
New Haven, Conn.	2.93	3.14	3.00	3.16	2.30	320,836
New York, N.Y.	3.47	3.64	3.91	3.48	2.60	10,694,633
Paterson-Clifton-Passaic, N.J.	3.47	3.53	3.49	3.33	2.40	1,186,873
Philadelphia, Pa.-N.J.	3.45	3.47	3.51	3.33	2.54	4,342,897
Pittsburgh, Pa.	3.38	3.51	3.77	3.35	2.74	2,405,435
Portland, Maine	-	2.83	2.98	2.95	2.02	139,122
Providence-Pawtucket-Warwick, R.I.-Mass.	2.71	3.16	3.24	2.67	1.98	821,101
Scranton, Pa.	-	2.94	2.92	2.93	2.02	234,531
Trenton, N.J.	3.26	3.44	3.39	3.12	2.37	266,392
Waterbury, Conn.	2.90	3.22	3.18	3.06	2.22	185,548
Worcester, Mass.	3.05	3.47	3.20	3.25	2.50	328,898
York, Pa.	2.86	3.10	2.94	2.94	2.16	290,242
South						
Atlanta, Ga.	3.16	3.66	3.38	2.85	1.93	1,017,188
Baltimore, Md.	3.40	3.47	3.70	3.59	2.54	1,727,023
Beaumont-Port Arthur-Orange, Tex.	3.75	3.76	3.78	3.64	2.46	331,621
Birmingham, Ala.	3.37	3.73	3.68	3.53	2.15	634,864
Charleston, W. Va.	3.68	3.67	3.68	3.69	2.60	252,925
Charlotte, N.C.	-	2.79	3.00	2.70	1.62	316,781
Chattanooga, Tenn.-Ga.	2.48	3.00	2.98	3.02	2.14	283,169
Dallas, Tex.	3.04	3.23	3.07	2.95	1.95	1,083,601
Fort Worth, Tex.	3.28	3.62	3.41	3.03	1.98	573,215
Greenville, S.C.	2.25	2.49	2.46	2.49	1.62	255,806
Houston, Tex.	3.65	3.69	3.77	3.43	2.04	1,243,158
Jackson, Miss.	-	2.94	2.89	2.67	1.72	221,367

(cont'd)

Table IV-3A (cont'd)

Cities	Carpenter	Electrician	Machinist	Mechanic	Labourer	Metropolitan Area Population 1960 <u>2</u> /
Jacksonville, Fla.	\$ -	\$ 3.39	\$ 3.24	\$ 2.86	\$ 1.66	\$ 455,411
Little Rock-North Little Rock, Ark.	2.36	2.83	2.93	2.78	1.62	242,980
Louisville, Ky.-Ind.	3.56	3.74	3.63	3.52	2.48	725,139
Lubbock, Tex.	-	-	-	2.64	1.59	156,271
Memphis, Tenn.-Ark.	2.79	3.43	3.30	3.14	1.94	674,583
Miami, Fla.	-	2.86	-	2.61	1.76	935,047
Midland and Odessa, Tex.	-	-	-	3.53	-	158,712
New Orleans, La.	3.31	3.48	3.47	3.25	2.00	907,123
Norfolk-Portsmouth and Newport- New Hampton, Va.	2.86	3.35	3.43	2.72	1.98	803,010
Oklahoma City, Okla.	-	2.98	-	2.76	2.12	511,833
Raleigh, N.C.	-	2.73	-	2.54	1.55	169,082
Richmond, Va.	3.28	3.42	3.39	3.26	2.03	436,044
San Antonio, Tex.	-	-	-	2.92	1.82	716,168
Savannah, Ga.	3.34	3.43	-	3.25	1.89	188,299
Tampa-St. Petersburg, Fla.	2.91	3.23	3.19	2.99	1.65	772,453
Washington, D.C.-Md.-Va.	-	-	-	3.34	2.18	2,001,897
North Central						
Akron, Ohio	3.69	3.71	3.53	3.68	2.86	605,367
Canton, Ohio	3.39	3.52	3.58	3.22	2.61	340,345
Chicago, Ill.	3.41	3.73	3.80	3.47	2.48	6,220,913
Cincinnati, Ohio-Ky.-Ind.	3.40	3.51	3.58	3.26	2.65	1,268,479
Cleveland, Ohio	3.44	3.63	3.52	3.46	2.71	1,909,483
Columbus, Ohio	3.41	3.50	3.65	3.19	2.49	754,885
Davenport-Rock Island, Moline, Iowa- Ill.	3.49	3.80	3.68	3.65	2.76	319,375
Dayton, Ohio	3.68	3.68	3.78	3.37	2.78	727,121
Des Moines, Iowa	3.55	3.69	3.68	3.37	2.78	266,315
Detroit, Mich.	3.74	3.96	3.95	3.84	3.00	3,762,360
Green Bay, Wis.	-	3.09	3.16	2.97	2.54	125,082
Indianapolis, Ind.	3.58	3.70	3.55	3.57	2.50	916,932
Kansas City, Mo.-Kans.	3.63	3.77	3.80	3.42	2.65	1,092,545
Milwaukee, Wis.	3.52	3.87	3.86	3.52	2.75	1,232,731
Minneapolis-St. Paul, Minn.	3.45	3.85	3.71	3.28	2.71	1,482,030
Muskegon, Muskegon Heights, Mich.	3.18	3.30	3.34	3.22	2.67	149,943
Omaha, Neb.-Iowa	3.58	3.55	3.48	3.19	2.39	457,873
Rockford, Ill.	3.02	3.39	3.19	3.08	2.45	230,091

(cont'd)

Table IV-3A (concluded)

Cities	Carpenter	Electrician	Machinist	Mechanic	Labourer	Metropolitan Area Population 1960 ^{2/}
St. Louis, Mo.-Ill.	\$ 3.46	\$ 3.74	\$ 3.62	\$ 3.40	\$ 2.53	2,104,669
Sioux Falls, S. Dak.	-	-	-	-	2.56	86,575
South Bend, Ind.-Mich.	3.59	3.56	3.35	3.34	2.74	271,057
Toledo, Ohio-Mich.	3.71	3.55	3.71	3.35	2.63	630,647
Waterloo, Iowa	3.35	3.77	-	-	2.77	122,482
Wichita, Kans.	2.99	3.30	3.30	3.25	2.34	381,626
Youngstown-Warren, Ohio	3.66	3.84	3.78	3.73	2.76	509,006
West						
Albuquerque, N. Mex.	-	3.52	-	3.39	2.18	262,199
Denver, Colo.	3.42	3.46	3.38	3.27	2.66	929,383
Los Angeles-Long Beach and Anaheim-Santa Ana-Garden Grove, Calif.						
Phoenix, Ariz.	3.57	3.79	3.84	3.50	2.66	6,742,696
Portland, Oreg.-Wash.	3.57	3.59	3.66	3.43	2.41	663,510
Salt Lake City, Utah	3.59	3.68	3.67	3.55	2.67	821,897
San Bernardino-Riverside-Ontario, Calif.	3.36	3.40	3.44	3.41	2.72	447,795
San Diego, Calif.	3.50	3.82	3.82	3.58	2.57	809,782
San Francisco-Oakland, Calif.	3.54	3.85	3.87	3.60	2.97	1,033,011
San Jose, Calif.	3.80	3.93	3.94	3.73	3.04	2,648,762
Seattle-Everett, Wash.	3.66	3.74	3.79	3.52	2.65	642,315
Spokane, Wash.	3.59	3.67	3.60	3.56	3.02	1,107,213
	3.52	3.69	3.72	3.57	2.69	278,333
Average (unweighted)	3.33	3.46	3.46	3.24	2.36	
Average (weighted by population)	3.43	3.60	3.66	3.37	2.51	

^{1/} Canadian wage rates are for October 1, 1966 and for the U.S. various dates between July 1966 and June 1967.

^{2/} The decennial census for Canada was conducted in 1961, and in 1960 for the U.S.

For Canada, the population figures for the cities marked with an asterisk are as given for the census metropolitan areas; the figures for the remaining cities cover approximately the same areas as used in the Canada Department of Labour's Annual Report "Wage Rates, Salaries and Hours of Labour".

Sources: For Canada, Department of Labour, Wage Rates, Salaries and Hours of Labour, 1966; D.B.S., Census of Canada, 1961.

For U.S., Bureau of Labor Statistics, Wages and Related Benefits, 1966-67 (Bull. No. 1530-87); Statistical Abstract, 1965.

Table IV-3B

Relative Canadian Wage Rates^{1/} for Selected Maintenance Occupations
in Manufacturing, Compared with United States Averages, 1966-1967

Cities	Carpenter	Electrician	Machinist	Mechanic	Labourer
Corner Brook, Nfld.....	-	91.0	91.6	-	92.4
St. John's, Nfld.....	60.7	71.7	78.3	69.4	61.4
Halifax, N.S.	72.4	75.4	75.1	71.3	74.2
Sydney, N.S.....	-	-	-	90.1	91.5
Moncton, N.B.....	56.2	-	-	68.2	69.5
Saint John, N.B.....	67.3	72.8	68.2	70.1	70.3
Drummondville, Que.....	64.6	60.7	64.2	64.5	59.7
Granby, Que.....	60.1	63.9	64.7	61.7	72.5
Montreal, Que.....	77.8	79.5	77.7	81.5	80.1
Québec, Que.	77.2	77.7	79.5	82.1	85.2
Rouyn-Noranda, Que.....	-	-	-	-	74.6
Saguenay, Que.....	82.9	86.4	87.9	85.8	85.6
St. Hyacinthe, Que.....	57.4	64.7	59.0	64.2	60.6
St. Jean-Iberville, Que..	58.9	64.7	66.2	61.1	64.0
St. Jerome, Que.....	73.3	76.6	72.5	68.8	74.2
Shawinigan, Que.....	87.1	85.3	84.7	75.3	65.3
Sherbrooke, Que.....	59.2	65.6	62.7	66.4	64.8
Sorel, Que.....	74.2	76.0	78.0	81.5	90.7
Thetford Mines, Que.....	-	-	-	-	75.4
Trois-Rivières, Que.....	75.1	81.5	79.8	74.1	67.8
Valleyfield, Que.....	75.4	73.4	72.5	77.2	91.5
Hull-Ottawa, Qué.-Ont. ..	81.7	85.0	86.4	83.6	85.6
Belleville, Ont.....	77.2	75.1	68.5	72.2	77.5
Brampton, Ont.....	75.4	82.9	74.3	78.4	85.6
Brantford, Ont.....	74.5	83.5	81.2	79.3	83.9
Brockville, Ont.....	79.0	80.3	78.9	79.0	87.7
Chatham, Ont.....	-	82.9	83.2	87.3	93.2
Cornwall, Ont.....	82.3	81.2	84.7	79.3	86.0
Fort William -					
Port Arthur, Ont.....	92.2	87.9	93.9	88.3	94.5
Galt, Ont.....	66.7	71.7	67.3	66.7	78.0
Guelph, Ont.....	74.2	79.2	71.7	87.0	80.9
Hamilton, Ont.	91.0	92.5	90.8	94.8	93.6
Kingston, Ont.....	77.5	81.8	82.7	85.8	84.3
Kitchener-Waterloo, Ont..	67.9	75.7	71.4	75.9	82.6
London, Ont.	75.4	83.2	80.9	84.3	87.3
Niagara Falls, Ont.....	83.2	87.3	81.8	85.5	97.5
North Bay, Ont.....	70.0	79.8	74.6	78.4	71.2
Oshawa, Ont.....	89.5	93.1	86.4	92.0	108.9
Peterborough, Ont.....	72.4	78.3	78.6	82.4	85.6
St. Catharines, Ont.....	89.8	92.5	87.6	96.3	97.5
St. Thomas, Ont.....	72.1	75.4	69.9	76.9	83.5
Sarnia, Ont.....	93.7	95.1	95.1	97.2	103.4
Sault Ste. Marie, Ont....	96.7	98.3	99.1	99.4	96.2
Stratford, Ont.....	64.6	70.8	71.1	69.4	78.0
Sudbury, Ont.	94.6	95.7	94.5	98.5	103.0
Timmins, Ont.....	-	-	-	66.4	60.2
Toronto, Ont.	80.5	86.1	81.8	85.8	83.9
Welland, Ont.....	91.9	91.6	89.3	78.0	97.5
Windsor, Ont.	92.2	95.7	89.0	100.9	108.1
Woodstock, Ont.....	68.2	78.6	76.6	78.7	85.2
Winnipeg, Man.	72.4	78.6	76.0	79.0	75.8
Regina, Sask.....	76.3	87.0	87.3	82.4	79.7
Saskatoon, Sask.....	-	81.8	89.3	78.1	82.2
Calgary, Alta.	72.7	85.5	85.0	82.7	85.2

(cont'd)

Table IV-3B (concluded)

Cities	Carpenter	Electrician	Machinist	Mechanic	Labourer
Edmonton, Alta.....	80.5	89.0	86.4	82.4	78.4
Vancouver, B.C.....	94.6	97.4	91.0	96.0	103.0
Victoria, B.C.....	94.6	96.2	88.2	99.1	100.0
Average percentage (unweighted).....	76.9	81.5	80.1	80.6	83.1
Average (unweighted) of U.S. Rates.....	\$3.33	\$3.46	\$3.46	\$3.24	\$2.36

¹/For each occupation, an unweighted average of the U.S. rates shown in Table IV-3-A is computed and each Canadian rate is computed as a percentage of it. The U.S. average is taken to be equal to 100.

Table IV-4A

Wage Rates for Selected Occupations in Construction (Building and Structures),
in a Number of Cities in Canada and the United States, 1966¹

Cities	Carpenter	Lather	Plasterer	Plumber	Sheet metal worker	Labourer
	\$	\$	\$	\$	\$	\$
C a n a d a						
Corner Brook, Nfld.	2.30	-	-	-	-	1.48
St. John's, Nfld.	2.27	-	-	2.45	2.30	1.71
Halifax, N.S.	2.54	2.69	2.83	2.86	2.60	1.91
Sydney, N.S.	2.63	-	2.84	-	-	-
Moncton, N.B.	2.30	1.60	2.40	2.55	1.85	1.40
Saint John, N.B.	2.45	1.60	2.60	2.60	2.00	1.45
Chicoutimi, Que.	2.60	2.40	2.70	2.70	2.70	2.25
Drummondville, Que.	2.55	2.55	2.70	2.55	2.55	2.05
Granby, Que.	2.69	-	2.99	2.69	2.69	2.27
Hull, Que.	2.75	2.85	2.80	2.70	2.65	1.85
Montréal, Que.	3.39	3.21	3.60	3.35	-	2.95
Quebec, Qué.	2.65	2.50	2.85	3.05	2.65	2.25
Rouyn-Noranda, Que.	2.30	2.40	2.40	2.50	2.50	1.80
St. Hyacinthe, Que.	2.30	-	2.50	2.30	2.30	-
St. Jean, Que.	2.60	-	2.90	2.70	2.70	2.25
St. Jérôme, Que.	2.65	2.75	2.75	2.65	2.65	2.10
Shawinigan, Que.	2.59	2.42	2.80	2.51	2.51	2.20
Sherbrooke, Que.	2.65	2.60	2.85	2.85	2.85	2.15
Sorel, Que.	2.85	-	3.05	3.10	2.90	2.30
Thetford Mines, Que.	2.65	2.50	2.85	3.05	2.65	2.25
Trois-Rivieres, Que.	2.59	2.42	2.80	2.51	2.51	2.25
Valleyfield, Que.	3.39	3.21	3.60	3.35	-	2.95
Belleville, Ont.	3.00	3.40	-	3.50	3.45	1.85
Brampton, Ont.	3.68	3.25	3.75	4.16	4.15	2.70
Brantford, Ont.	3.30	3.70	3.50	-	-	2.35
Brockville, Ont.	3.25	3.40	-	3.63	3.45	2.23
Chatham, Ont.	-	3.70	3.88	3.95	3.75	2.33
Cornwall, Ont.	2.90	3.40	-	3.70	-	1.80
Fort William-Port Arthur, Ont.	3.55	3.35	3.25	3.70	3.35	2.18
Guelph, Ont.	3.67	3.70	3.45	-	3.35	2.10
Hamilton, Ont.	3.68	3.75	3.15	4.10	3.75	2.55
Kingston, Ont.	3.55	3.40	3.60	3.63	3.45	2.23
Kitchener-Waterloo, Ont.	3.25	3.70	3.45	-	3.35	2.25
London, Ont.	3.67	3.70	3.40	-	3.72	2.75
Niagara Falls, Ont.	3.48	3.75	3.60	4.10	-	2.10
North Bay, Ont.	3.20	3.35	-	3.65	-	1.96
Oshawa, Ont.	3.45	3.40	3.59	3.65	4.15	2.48
Ottawa, Ont.	3.05	3.05	3.05	3.60	3.40	2.10
Peterborough, Ont.	3.05	3.40	-	3.45	-	1.75
St. Catharines, Ont.	3.68	3.75	3.78	4.10	-	2.30
St. Thomas, Ont.	3.67	3.70	3.40	-	3.72	2.35
Sarnia, Ont.	3.55	3.70	3.80	3.90	4.05	2.85
Sault Ste. Marie, Ont.	3.50	3.35	3.60	3.65	3.50	2.15
Stratford, Ont.	3.67	3.70	3.40	-	3.72	2.35
Sudbury, Ont.	3.41	3.35	3.25	3.80	3.70	2.35
Timmins, Ont.	3.20	3.35	-	3.65	3.50	1.96
Toronto, Ont.	3.68	3.25	3.75	4.16	4.15	2.70
Welland, Ont.	3.48	3.75	3.78	4.10	-	2.10
Windsor, Ont.	3.60	3.70	3.88	3.95	3.73	2.97
Woodstock, Ont.	3.67	3.70	3.40	-	3.72	2.35
Winnipeg, Man.	3.05	2.95	3.00	3.39	2.90	2.10
Regina, Sask.	2.85	2.75	2.90	2.85	3.05	2.02
Saskatoon, Sask.	2.80	2.75	-	3.10	2.90	2.02
Calgary, Alta.	3.35	3.25	3.00	3.45	3.05	2.30
Edmonton, Alta.	3.30	3.20	3.30	3.45	3.40	2.30
Vancouver, B.C.	3.69	3.75	3.85	3.81	3.48	2.94
Victoria, B.C.	3.69	3.75	3.40	3.68	3.43	2.94

(cont'd)

Table IV-4A (cont'd)

Cities	Carpenter	Lather	Plasterer	Plumber	Sheet metal worker	Labourer
	\$	\$	\$	\$	\$	\$
United States						
Albuquerque, N. Mex.	4.25	4.50	4.25	4.65	4.58	3.03
Atlanta, Ga.	4.00	4.35	4.35	4.80	4.25	2.55
Baltimore, Md.	4.18	4.35	4.30	4.63	4.53	2.78
Birmingham, Ala.	3.90	3.75	3.97	4.40	4.25	2.60
Boston, Mass.	4.75	5.25	4.90	5.30	5.08	3.65
Buffalo, N.Y.	4.52	5.21	5.21	4.78	4.85	3.54
Charlotte, N.C.	3.35	3.63	-	3.90	3.75	-
Chicago, Ill.	5.20	5.04	5.03	5.25	5.35	3.83
Cincinnati, Ohio	4.55	4.60	4.18	4.89	4.54	3.85
Cleveland, Ohio	5.05	5.41	5.31	5.19	5.40	4.27
Columbus, Ohio	4.21	4.55	4.30	4.65	4.39	3.44
Dallas, Tex.	4.25	4.10	4.26	4.55	4.40	2.35
Dayton, Ohio	4.56	4.55	4.65	4.85	4.60	3.54
Denver, Colo.	4.57	4.70	4.70	4.61	4.68	3.20
Des Moines, Iowa	4.30	4.58	4.58	4.80	4.70	3.55
Detroit, Mich.	4.63	4.61	4.92	5.00	4.75	3.95
Erie, Pa.	4.37	4.68	4.45	4.63	4.40	3.43
Evansville, Ind.	4.15	4.45	4.60	4.53	4.35	3.13
Fresno, Calif.	4.90	5.00	4.85	5.98	5.20	3.93
Grand Rapids, Mich.	4.20	4.30	4.36	5.07	4.22	3.25
Houston, Tex.	4.50	4.53	4.53	4.30	4.24	2.65
Indianapolis, Ind.	4.50	4.65	4.75	4.55	4.63	3.20
Jackson, Miss.	3.60	3.65	3.75	4.60	4.05	1.80
Jacksonville, Fla.	3.95	4.05	4.00	4.30	4.35	1.80
Kansas City, Mo.	4.35	4.35	4.58	4.80	4.55	3.20
Knoxville, Tenn.	3.95	4.00	4.20	4.45	4.10	2.55
Little Rock, Ark.	3.73	4.05	4.15	4.45	4.25	2.40
Los Angeles, Calif.	4.83	4.68	4.80	5.55	5.74	3.70
Louisville, Ky.	4.13	4.24	4.35	4.46	4.40	3.25
Lubbock, Tex.	3.50	4.00	4.25	4.25	4.35	-
Madison, Wis.	4.25	4.33	4.45	4.47	4.20	3.70
Memphis, Tenn.	4.15	4.00	4.20	4.62	4.30	2.20
Milwaukee, Wis.	4.51	4.47	4.42	4.87	4.56	3.73
Minneapolis, Minn.	4.13	4.10	4.35	4.59	4.43	3.70
Newark, N.J.	5.81	5.31	5.65	5.35	5.55	4.10
New Haven, Conn.	4.50	4.82	4.80	4.90	4.80	3.70
New Orleans, La.	4.00	3.95	3.96	4.64	4.09	2.46
New York, N.J.	5.95	5.80	5.75	5.00	5.40	5.20
Norfolk, Va.	3.45	3.51	4.15	3.95	3.90	1.90
Oakland, Calif.	4.88	4.94	4.97	6.47	5.53	3.93
Oklahoma City, Okla.	3.95	4.38	4.38	4.70	4.30	2.80
Omaha, Nebr.	4.25	4.40	4.40	4.51	4.28	3.13
Peoria, Ill.	4.54	4.70	5.00	4.70	4.70	4.15
Philadelphia, Pa.	4.55	4.76	4.94	5.35	5.26	3.35
Phoenix, Ariz.	4.69	4.89	4.91	4.95	5.00	3.49
Pittsburgh, Pa.	5.20	5.33	5.31	5.00	5.33	3.65
Portland, Oreg.	4.68	4.70	4.60	4.73	4.70	3.90
Providence, R.I.	4.10	5.05	4.78	5.00	4.40	3.40
Richmond, Va.	3.45	3.88	4.00	4.15	4.00	1.90
Rochester, N.Y.	4.91	5.01	5.39	5.01	5.02	3.93
Sacramento, Calif.	4.90	4.90	4.90	5.92	5.65	3.93
St. Louis, Mo.	4.98	5.15	4.60	5.41	5.12	3.88
St. Paul, Minn.	4.13	4.05	4.10	4.50	4.40	3.70
Salt Lake City, Utah	4.30	4.20	4.21	4.65	4.33	3.08
San Antonio, Tex.	3.94	4.25	4.38	4.36	4.48	2.12
San Diego, Calif.	4.94	4.63	4.85	5.55	5.75	3.91
San Francisco, Calif.	4.88	4.94	5.30	6.56	5.62	3.93
Scranton, Pa.	3.76	4.75	4.43	4.58	4.15	3.20
Seattle, Wash.	4.48	4.55	4.55	4.83	5.12	3.80
Shreveport, La.	3.70	4.25	4.25	4.30	4.00	2.03

(cont'd)

Table IV-4A (concluded)

Cities	Carpenter	Lather	Plasterer	Plumber	Sheet metal worker	Labourer
	\$	\$	\$	\$	\$	\$
South Bend, Ind.	4.40	4.00	4.48	4.50	4.35	3.40
Spokane, Wash.	4.45	4.57	4.57	4.83	4.89	3.40
Springfield, Mass.	4.45	4.50	4.80	4.90	4.75	3.30
Syracuse, N.Y.	4.72	4.93	4.93	4.35	4.97	3.95
Tampa, Fla.	3.90	3.90	3.85	4.25	4.10	2.23
Toledo, Ohio	4.65	4.60	4.70	5.24	4.59	3.74
Topeka, Kans.	3.75	4.25	4.40	4.77	4.19	2.80
Trenton, N.J.	4.80	4.90	5.50	5.55	5.40	3.80
Tulsa, Okla.	3.90	4.38	4.38	4.68	4.30	2.90
Washington, D.C.	4.25	4.45	4.58	5.06	4.91	3.03

1/ In Canada, rates in effect in October 1966; in the U.S. rates in effect July 1966.

Sources: For Canada, Department of Labour, Wage Rates, Salaries and Hours of Labour, 1966.

For United States, Bureau of Labor Statistics, Union Wages and Hours: Building Trades (Bull. No. 1547).

Table IV-4B

Relative Canadian Wage Rates^{1/} for Selected Construction Occupations
Compared with United States Averages, 1966

Cities	Carpenter	Lather	Plasterer	Plumber	Sheet Metal Worker	Labourer
Corner Brook, Nfld.....	52.6	-	-	-	-	45.1
St. John's, Nfld.....	51.9	-	-	50.7	49.5	52.1
Halifax, N.S.....	58.1	59.5	61.7	59.2	55.9	58.2
Sydney, N.S.....	60.2	-	61.9	-	-	-
Moncton, N.B.....	52.6	35.4	52.3	52.8	39.8	42.7
Saint John, N.B.....	56.1	35.4	56.6	53.8	43.0	44.2
Chicoutimi, Que.....	59.5	53.1	58.8	55.9	58.1	68.6
Drummondville, Que.....	58.4	56.4	58.8	52.8	54.8	62.5
Granby, Que.....	61.6	-	65.1	55.7	57.8	69.5
Hull, Que.....	62.9	63.1	61.0	55.9	57.0	56.4
Montreal, Que.....	77.6	71.0	78.4	69.4	-	89.9
Quebec, Que.....	60.6	55.3	62.1	63.1	57.0	68.6
Rouyn-Noranda, Que.....	52.6	53.1	52.3	51.8	53.8	54.9
St. Hyacinthe, Que.....	52.6	-	54.5	47.6	49.5	-
St. Jean, Que.....	59.5	-	63.2	55.9	58.1	68.6
St. Jerome, Que.....	60.6	60.8	59.9	54.9	57.0	64.0
Shawinigan, Que.....	59.3	53.5	61.0	52.0	54.0	67.1
Sherbrooke, Que.....	60.6	57.5	62.1	59.0	61.3	65.5
Sorel, Que.....	65.2	-	66.4	64.2	62.4	70.1
Thetford Mines, Que.....	60.6	55.3	62.1	63.1	57.0	68.6
Trois-Rivieres, Que.....	59.3	53.5	61.0	52.0	54.0	68.6
Valleyfield, Que.....	77.6	71.0	78.4	69.4	-	89.9
Belleville, Ont.....	68.6	75.2	-	72.5	74.2	56.4
Brampton, Ont.....	84.2	71.9	81.7	86.1	89.2	82.3
Brantford, Ont.....	75.5	81.9	76.3	-	-	71.6
Brockville, Ont.....	74.4	75.2	-	75.2	74.2	68.0
Chatham, Ont.....	-	81.9	84.5	81.8	80.6	71.0
Cornwall, Ont.....	66.4	75.2	-	76.6	-	54.9
Fort William -						
Port Arthur, Ont.....	81.2	74.1	70.8	76.6	72.0	66.5
Guelph, Ont.....	84.0	81.9	75.2	-	72.0	64.0
Hamilton, Ont.....	84.2	83.0	68.6	84.9	80.6	77.7
Kingston, Ont.....	81.2	75.2	78.4	75.2	74.2	68.0
Kitchener - Waterloo, Ont.	74.4	81.9	75.2	-	72.0	68.6
London, Ont.....	84.0	81.9	74.1	-	80.0	83.8
Niagara Falls, Ont.....	79.6	83.0	78.4	84.9	-	64.0
North Bay, Ont.....	73.2	74.1	-	75.6	-	59.8
Oshawa, Ont.....	78.9	75.2	78.2	75.6	89.2	75.6
Ottawa, Ont.....	69.8	67.5	66.4	74.5	73.1	64.0
Peterborough, Ont.....	69.8	75.2	-	71.4	-	53.4
St. Catharines, Ont.....	84.2	83.0	82.4	84.9	-	70.1
St. Thomas, Ont.....	84.0	81.9	74.1	-	80.0	71.6
Sarnia, Ont.....	81.2	81.9	82.8	80.7	87.1	86.9
Sault Ste. Marie, Ont.....	80.1	74.1	78.4	75.6	75.3	65.5
Stratford, Ont.....	84.0	81.9	74.1	-	80.0	71.6
Sudbury, Ont.....	78.0	74.1	70.8	78.7	79.6	71.6
Timmins, Ont.....	73.2	74.1	-	75.6	75.3	59.8
Toronto, Ont.....	84.2	71.9	81.7	86.1	89.2	82.3
Welland, Ont.....	79.6	83.0	82.4	84.9	-	64.0
Windsor, Ont.....	82.4	81.9	84.5	81.8	80.2	90.5
Woodstock, Ont.....	84.0	81.9	74.1	-	80.0	71.6
Winnipeg, Man.....	69.8	65.3	65.4	70.2	62.4	64.0
Regina, Sask.....	65.2	60.8	63.2	59.0	65.6	61.5
Saskatoon, Sask.....	64.1	60.8	-	64.2	62.4	61.5
Calgary, Alta.....	76.7	71.9	65.4	71.4	65.6	70.1

(cont'd)

Table IV-4B (concluded)

Cities	Carpenter	Lather	Plasterer	Plumber	Sheet Metal Worker	Labourer
Edmonton, Alta.....	75.5	70.8	71.9	71.4	73.1	70.1
Vancouver, B.C.....	84.4	83.0	83.9	78.9	74.8	89.6
Victoria, B.C.....	84.4	83.0	74.1	76.2	73.8	89.6
Average percentage (unweighted).....	70.8	70.3	69.9	68.5	67.7	67.9
Average (unweighted) of U.S. Rates.....	\$4.37	\$4.52	\$4.59	\$4.83	\$4.65	\$3.28

^{1/} For each occupation, an unweighted average of the U.S. rates shown in Table IV-4A is computed and each Canadian rate is computed as a percentage of it. The U.S. averages are shown at the foot of each column and each average is taken to be equal to 100.

Table IV-5A

Wage Rate Variation for Selected Jobs by Size of City,
All Manufacturing, Canada, 1966

Occupation	All Cities		Cities less than 100,000		Cities 100,000 and over		Standard Deviation ^{1/}			Coefficient of Variation		
	Number of Cities	$\frac{1}{\text{Average}}$	Number of Cities	$\frac{1}{\text{Average}}$	Number of Cities	$\frac{1}{\text{Average}}$	All Cities	Cities less than 100,000	Cities 100,000 and over	All Cities	Cities less than 100,000	Cities 100,000 and over
		\$		\$		\$	\$	\$	\$	%	%	%
Carpenter	50	2.56	32	2.46	18	2.73	.36	.36	.29	14.1	14.6	10.6
Electrician	52	2.82	34	2.74	18	2.99	.32	.32	.24	11.3	11.7	8.0
Machinist	52	2.77	34	2.68	18	2.93	.32	.33	.22	11.6	12.3	7.5
Mechanic	54	2.61	36	2.52	18	2.80	.33	.33	.26	12.6	13.1	9.3
Labourer	57	1.96	39	1.91	18	2.08	.29	.30	.33	14.8	15.7	11.1
Average ^{1/}		2.54		2.46		2.71				12.9	13.5	9.3

^{1/}The averages and standard deviations are not weighted by employment in each city.

Source: Table IV-3-A.

Table IV-5B

Wage Rate Variation for Selected Jobs by Size of City,
All Manufacturing, United States, 1966-67

	All Cities		Cities less than 500,000		Cities 500,000 to 1 million		Cities 1 million and over		Standard Deviation ^{1/}				Coefficient of Variation			
	Number of Cities	$\frac{1}{\text{Average}}$	Number of Cities	$\frac{1}{\text{Average}}$	Number of Cities	$\frac{1}{\text{Average}}$	Number of Cities	$\frac{1}{\text{Average}}$	All Cities	Cities less than 500,000	Cities 500,000 to 1 million	Cities 1 million and over	All Cities	Cities less than 500,000	Cities 500,000 to 1 million	Cities 1 million and over
Occupation																
Carpenter	68	3.33	25	3.17	20	3.38	23	3.46	.33	.39	.31	.17	9.9	12.3	9.2	4.9
Electrician	79	3.46	34	3.28	22	3.52	23	3.66	.32	.34	.26	.18	9.2	10.4	7.4	4.9
Machinist	73	3.46	30	3.23	20	3.56	23	3.67	.32	.31	.18	.21	9.2	9.6	5.1	5.7
Mechanic	82	3.24	35	3.12	23	3.24	24	3.40	.32	.32	.33	.22	9.9	10.3	10.2	6.5
Labourer	83	2.36	36	2.25	23	2.31	24	2.57	.39	.40	.36	.31	16.5	17.8	15.6	12.1
Average ^{1/}		3.17		3.01		3.20		3.35					10.9	12.1	9.5	6.8

^{1/} The averages and standard deviations are not weighted by employment in each city.

Source: Table IV-3-A.

Sources of Information

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Reports of the Dominion Bureau of Statistics

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